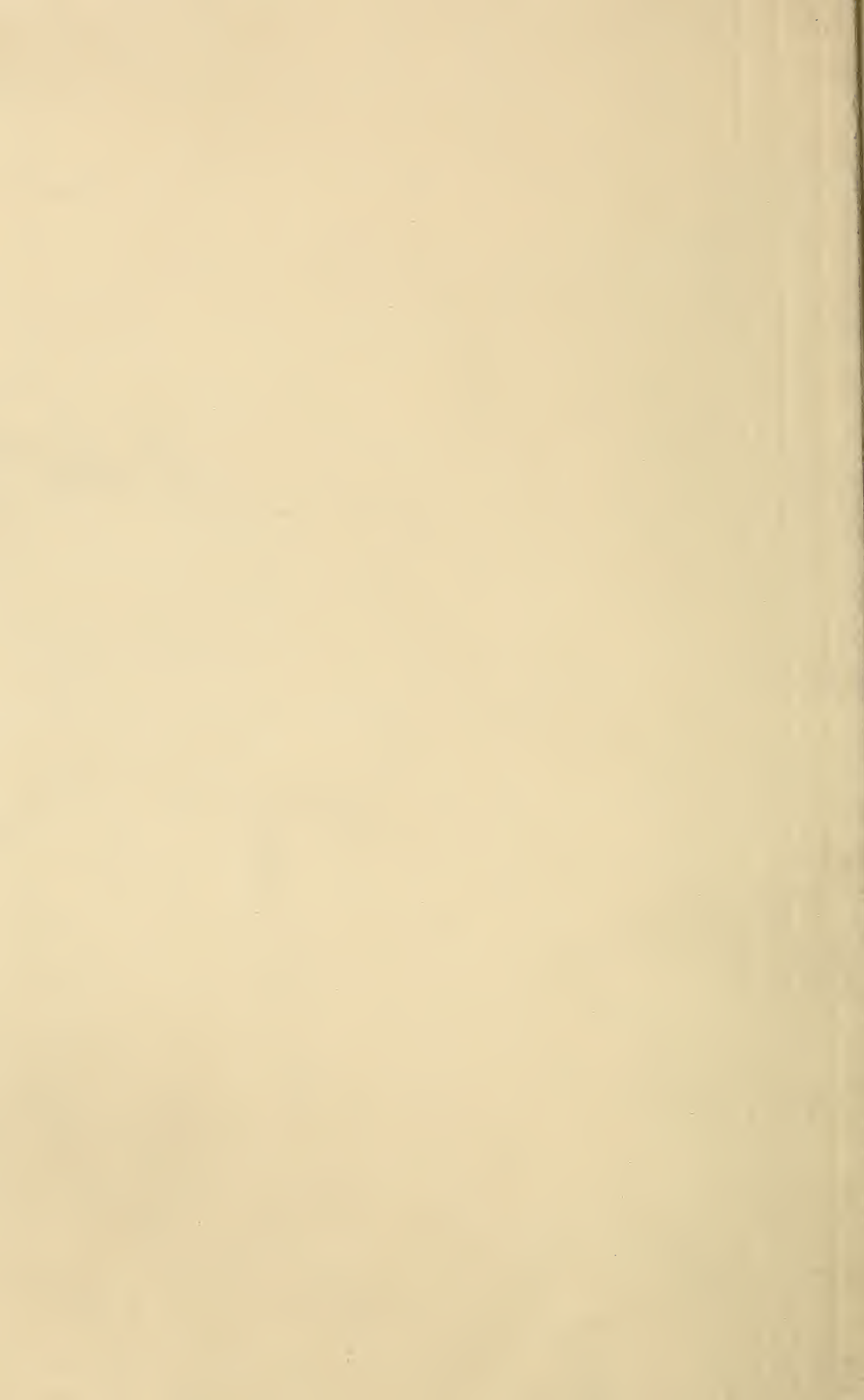


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GLEANINGS

A JOURNAL DEVOTED
TO BEES,
AND HONEY,
AND HOME
INTERESTS.

BEE CULTURE

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No. 24.

STRAY STRAWS

FROM DR. C. C. MILLER.

"VIRGINIA" might have the additional information, p. 849, that two queens could be wintered in one hive with a thin wood partition between them. A strong colony and a nucleus could thus pass the winter in one hive.

HERR ANDREAS ABEND asserts that a virgin queen may be fertilized, even after beginning to lay drone eggs. Three separate queens, prevented from flying by bad weather, were afterward fertilized, although "buckel-brut" was already in the hive.—*Bienen-Vater*.

A DISCUSSION is on across the sea as to whether bees creep into the cells in winter. So good authority as Rauschenfels and Lohzen insist that they occupy only the spaces between the combs, constantly changing position, and bees found in cells are either dead bees or those that have gone there for food or else because disturbed.

IF IT IS TRUE, as some good authorities insist, that in winter bees don't stay in the cells, then it is easy to believe that Gemmill is right, p. 845, that sealed combs are better than empty ones in the cluster. [I know we have used sealed combs—yes, stuck them right down into the cluster—during cold weather, and have secured good results.—Ed.]

A REMARKABLE CASE is given by Dr. Gallup, in *Am. Bee Journal*, which he calls "a case where a queen was compelled to leave for want of room." The colony swarmed and left, leaving a pint of bees, sealed brood the size of the hand, the rest of the combs solid honey—no queen-cell or unsealed brood. Has a similar case ever been recorded? [I do not remember any.—Ed.]

THE QUESTION is asked in *A. B. J.*, "Is honey more liable to granulate or ferment in leveled-down sections than with foundation?" Of those trying it, two say yes, seven no; one thinks yes and one thinks no. Three would have cells $\frac{1}{4}$ inch deep; one, $\frac{3}{8}$; three, $\frac{1}{2}$, and three full depth. [As there is such a diversity of answers it would appear that there is no practical difference.—Ed.]

I JUST BELIEVE it will be a good thing to have the Pettit idea in the super carried out with the fence. Still, with perfectly straight separators it isn't any great trick to take the unfinished sections from the outside rows of half a dozen supers, mass them in a single super, and have the bees make a nice job finishing them. [Yes, we expect to have that idea carried out in all our 1898 supers. The fence makes its application very simple.—Ed.]

ONE MAN used queen-excluding zinc in half his apiary, and ran all his extracted honey. He weighed the honey of the two lots separately, and claimed favor for the zinc.—*N. E. France*, in *A. B. J.* [And yet there are some who are foolish enough to assert—and I must think they do so without experience to back them up—that perforated zinc should never be used in the hive. Such kind of talk is about as foolish as to say that foundation is a curse to the bee-keeping world.—Ed.]

HERR GRAVENHORST quotes what has been said by GLEANINGS about bees hanging out, and says that for years he has avoided it by timely removal of sealed brood to prevent over-populousness, and by wedging up the hive and giving the fullest ventilation. [Giving the fullest ventilation, I am sure, is all right; but I should question very much the desirability of reducing the working force at a time when it may be most needed a little later on. It is the big colonies that get the honey—at least around Medina.—Ed.]

YOU'LL LAUGH AT ME, perhaps, but one of the things I enjoyed most at Buffalo was hearing Doolittle cry "'Tatoes! 'tatoes!" in imitation of the potato-vender. It wasn't the fun of the story, although that was good; it was the clear musical ring of his voice. [Yes, I too enjoyed the intonation Doolittle gave to 'tatoes; but "you will laugh at me," perhaps, when I tell you I have forgotten both the application and the story. Will friend Doolittle please tell it to the readers of GLEANINGS whenever an opportunity presents?—Ed.]

REPLYING to your question p. 838, Mr. Editor, I've a staggering notion that, after a queen stops laying in the fall, and through winter, she sort of abdicates the throne; and while her royalty is laid aside the bees are somewhat indifferent to her; and a strange

queen coming into the hive would be much the same to the bees as a strange worker. But remember that the notion doesn't stand square and solid on its feet. [Why call it a "staggering notion," doctor? You have offered a very plausible explanation, and to my eye it stands squarely on its feet.—ED.]

E. S. ARWINE, p. 846, seems a little uncertain what may be meant by piping. Small wonder. The term is generally applied loosely to any noise a queen makes. Better follow the German idea as used in Vol. I., *American Bee Journal*. There are two distinct sets of notes used by queens, differing in both pitch and rhythm. In piping, a long shrill note is uttered, followed by several others, each shorter than its predecessor. In quaking, the notes are coarser, more hurried, and more nearly of the same length. A queen never pipes in a cell, and never quaks out of a cell. Perhaps the note of a queen that is balled or grabbed by a worker might be called a squeal, being high-pitched like piping.

"A COLONY having a laying queen of the current year's rearing can be pretty surely relied upon not to desire to swarm, no matter how strong it may be within any reasonable bounds."—*R. L. Taylor's Buffalo paper*. That is probably true under some circumstances. One year I gave newly reared queens to prevent swarming, and nearly every one swarmed. But I think the rule works all right with Hutchinson. [The exception proves the rule; but I should say, according to my experience, that there may be quite a number of exceptions to this rule. I have almost come to believe that, in the matter of swarming at least, bees are pretty sure, at least at times, to break over all rules.—ED.]

AS NEARLY AS I can find out from others, 50° is the minimum temperature of a cluster of bees—below that, death. With the surrounding temperature at that point, the center of the cluster may be the same. As the surrounding air gets colder, there is more eating, so as to fire up the center sufficiently to keep periphery at 50°. So the colder outside, the warmer in center of cluster; and it may become so warm in the midst of severe winter as to allow brood-rearing, which requires 86° to 95°. [According to this we have the paradox that, the colder the weather the warmer the cluster. But the query arises in my mind, "If this is so, why will not bees winter better during prolonged severe cold weather than during milder winters?" Perhaps the answer is, "Too much food consumption (and it is certainly true in the human family) causes disease."—ED.]

A PLEASANT SIGHT it is to me to see in some of the hives in the cellar, the bees hanging two inches below the bottom-bars. I don't know whether it's because the hive's so full of bees or because the sealed honey comes down so low, but likely the latter. [Yes, it is a very pretty sight. When we wintered in the cellar I used to enjoy looking at the great bunches of healthy bees under the brood-frames; and at the beginning of winter I would say to myself, "How much better in

the cellar than outdoors in a bunch pinched together about the size of a snowball!" but when spring came on, and the cellar bottom was literally covered with bees an inch deep in places, then I thought to myself, "Would they have died had they been outdoors?" We now winter on summer stands exclusively. If our winters were more severe and prolonged, I suspect we should get better results in the cellar. But our outdoor bees have averaged the best in wintering, and hence we prefer that method for Medina.—ED.]

N. GENN is much in love with his plan for ventilating hives—no entrance either in hive or bottom-board. In spring he puts a loose lath under each side and one under back end. When warmer he takes out the back lath, leaving ventilation clear through. When more ventilation is needed, put two thicknesses of lath under each side, leaving back and front all open. Simple and good, but some will want the greater ventilation given by four blocks. [This, and a good many other items like it, going the rounds of the bee-keeping world, all go to show that large entrances will have to come. And, all in all, I believe that they afford the best solution of the problem of better ventilation. As the editor of the *Review* well remarks, a large entrance can easily be contracted, but a small one can not be enlarged. Putting blocks under the four corners of the hive necessitates prying the hive loose from the bottom, and breaking one's back to get the hive up. How much easier to manipulate a stop or slide weighing an ounce or so to contract a large entrance!—ED.]

"WE USUALLY FIGURE on about 10 pounds of honey per Langstroth frame" is the statement on p. 852. I changed my views about weight of combs after some weighing. Please weigh some. I'll not reproach you with being fickle-minded if you change that 10 to something nearer 5. [After the estimate was printed, the thought struck me that I had put it too high, for the cold print afterward made it seem to me too big; so when I came across this Straw I was quite ready to give up. At all events, following your suggestion, with a pair of spring scales I trapped down to the house-apiary through the mud, where we have stowed away a lot of sealed combs of sealed honey, which we always keep on hand for colonies short of stores. I weighed some of the heaviest of these, and the scales showed 8½ lbs.; the medium weights about 6; the light ones about 4; so I shall have to acknowledge, doctor, that 5 lbs. would be a correct estimate to place upon combs as they are usually filled in the hive with winter stores. My estimate of 10 lbs. was based on the fact that, years ago, when we were extracting, we had a good many combs that weighed 10 lbs.; but I had forgotten the fact that we then spaced our frames 1½ inches from center to center, instead 1¾, as we now do. The thought also stuck in my mind that some of our heavy extracting-supers, which I lifted to put bee-escapes under, must weigh (according to my back) nearly a hundred pounds; but they probably did not stand over 75, including the hive-body.—ED.]



Land Sharks; Something of Importance to Those Who Contemplate Going West; Failure of Water Supply in Irrigated Districts.

BY R. C. AIKIN.

The original plan of our trip was to see the Arkansas Valley, with a view of locating there. I could not make up my mind to leave the alfalfa country entirely. Besides, after one has lived a few years in a dry country he has a dread of rain and mud, so I hoped to find in the Arkansas Valley a low enough altitude to suit my wife, and yet remain in the alfalfa country, dry climate, and irrigated lands. The difference in latitude between the Big Thompson Valley at Loveland and the Arkansas Valley makes the winter about four weeks shorter in the latter. The wintering problem is not so much to be feared as we get more south, which thought also led us in that direction. We intended, however, to view the valley to at least near Central Kansas, thence go north to Lincoln to be at the meeting of the North American in October, beginning the 7th. From Lincoln we were to pass east into Southwest Iowa, my old home, then from there south through Missouri and Arkansas to Texas. As we left Loveland Sept. 2d we had but 34 or 35 days to make a drive of 800 miles or over, see the country, talk bees, and other matters, and visit some friends along the route, etc. Counting out Sundays and all other stops we must average about 30 miles a day, else we should miss the convention. We arrived at Lincoln just after noon of the first day of the convention.

I think perhaps a goodly number of the readers of GLEANINGS will be interested in knowing what we found on that trip, hurried as it was. Some are looking westward for locations because the state of their health demands a change. Others are looking only to find a place to obtain big crops and make money. All together I know that many are anxious to know what is in the West for them, and, knowing this, it is my desire to show Colorado as it is; and right here I want to say to all who may read this, that, should you get "boom advertisements" of favored locations in the West, don't you believe the *lies* they tell.

The Arkansas is a large stream. We found considerable water in it at Pueblo, and quite a strip of country down the valley that was watered and making comfortable homes. This river, as do nearly all mountain streams, has a rapid fall. A stream to supply irrigating water at any reasonable cost must have from 10 to 20 or 30 feet fall to the mile, that the water may be gotten out to the lands without the ditches having to be very long.

Reader, just think of any ordinary river that you know of, then think how many ditches or canals it would take to lead *all* its waters out. A ditch five to twenty feet wide here; another a little further down on the other side. Travel along your river for fifty or one hundred miles, and see every few miles ditches that are almost rivers in themselves, and many smaller ones, all leading the waters out, these ditches themselves being divided and subdivided, spreading out the waters until they simply run out, and you have some idea of how the waters of our streams are utilized.

Think of it in another way. Think how the tiny streams from a great spread of country keep gathering into one another, uniting and reuniting until they become rivers. Just reverse the whole order of this, and send the water out into the vast army of little streams and springs, and you have a system of irrigation in operation. Thus it is that the waters of large streams are turned from their courses and spread upon the *dry* earth until the river-bed becomes dry. Before we got out of Colorado we forded the Arkansas (rather, crossed without a bridge) where the channel was nearly half a mile wide, and not one drop of water was visible—nothing but dry sand and gravel. Now, suppose you had been an early settler there, and had made a ditch from the river, and watered your farm. In the course of years many other settlers have passed beyond you, and taken claims, and made ditches until the river brought you no water, making of your farm what it originally was—a desert. Well, just such things did happen, in more or less degree, until our legislatures took hold of the matter, and now it is so that, as long as the stream has in it "*unappropriated* water," one may *appropriate* and take out water; but since the snow supply in the mountains varies, and as it becomes less, the last appropriation is the first to be denied the right to draw until the "*prior*" rights are satisfied.

Last year was one of short water-supply, and we saw ditches that had not had water in them the whole summer—ditches miles and miles long, covering dozens of farms, and costing thousands of dollars. I verily believe that there is enough barren land—barren only for lack of moisture—east of the Rocky Mountains and west of the Missouri, to consume the waters of both the Missouri and Mississippi.

Now, can you realize what it is to come to Colorado to farm? No, you can not. Come and see it, and still you can not fully realize it. Some boom paper will offer "*lands under ditch*;" and when you buy and go to farm it you find the ditch dry, or nearly so. Colorado has some fine productive farms, some well-watered country, some nice cities and towns, and, above all, a sunny and rather genial climate; but if you are not familiar with conditions and environments, come and see it before you sell out and leave comfortable homes elsewhere. Almost every one knows pretty much what the East is; but very few in the East know what the West is.

The Arkansas Valley is surely very productive where they have the water-supply; but

the river, though a large one, can water but a narrow strip of country through which it passes. We saw fine farms and quite a number of apiaries in the valley. We also saw quite large tracts of alfalfa where there were few or no bees to pasture it. At Rocky Ford was that extensive apiarist Mr. Hagan. We called at his home, but he was down street. We went down street and met him. I have ever since had a suspicion that friend Hagan did not want any more bee keepers spying out that country, so we passed on. I don't know how much honey that vicinity produced, but melons were everywhere. I was told that, up to that time, about September 15, over 400 carloads of melons had been shipped out.

Las Animas seemed to have many bees too, and there we called at the home of Mr. Oliver Foster, but no one was there. Before leaving town we learned that Mr. Foster and family were out of town for a day or two. As we must be at Lincoln on time we could not wait, so passed on.

We traveled that valley, I suppose, for 400 miles or more; and while there are some good honey locations, there are many more places that would not support even a small apiary.

We have talked much about water. We call the Missouri the "Big Muddy," and I think the Arkansas might be called the Little Muddy. I do not know about the North Platte, but I do know that the South Platte and the Arkansas, and some other streams as well, are so muddy and so alkaline that they are not "respectable" to drink from, and sometimes wholly unfit to either drink out of or wash in.

Very much of the country near the mountains, and in many localities all over the arid regions in particular, is full of alkali. Where irrigating is practiced, the water leaches out the alkali and carries it in solution, so that, wherever the water is found again in springs, wells, or swamps, it is unfit for use. In almost all of the irrigated country with which I am acquainted, a very large per cent of both well and running water is alkaline. A large per cent, however, of the streams before they leave the hills are as clear as crystal, and free of alkali. The cities of Fort Collins, Loveland, Berthoud, Longmont, and Boulder, all near the mountains, and drawing their supplies from above irrigation, have good water. Denver is only medium, while down the Arkansas the only good drink we could get was by eating melons. I am thankful we passed through that valley in melon season. Eastern Colorado, off the streams, where "deep wells" are put down to "sheet water," has good water.

To find church privileges, good water, good markets, good honey resources, etc., in combination, is what we failed to do.

(Continued.)

[Permit me to say a word in regard to farms located where the supply of water is likely to be exhausted. We saw quite a few of them in the neighborhood of Phoenix, Arizona; and I do not know of a sadder sight than a farm where some one has tried in vain to make a

home, and, after having expended both time and money, to see every thing go to ruin just because water was all gone before it reached his ranch. Lots of swindles have been perpetrated, so I am told, by the land speculators, along this very line. My friend Elvey, whom I have mentioned, gave me one case by way of illustration. A friend of his got into the toils of these land pirates; but Mr. Elvey got hold of him in the nick of time, and gave him fair warning. He refused to have any thing to do with them, and went back home—quite a distance, by the way. After he reached home he received a letter from these same fellows, telling of some unforeseen train of circumstances where a valuable piece of property was to be sold for a song, and they finally offered to pay his expenses both ways in case he declined to take up with the offer. He went back again, and the sharks succeeded so well in convincing him that his chance was only one in a thousand that he made the deal without consulting his old friend Elvey at all, and then found that he had been swindled out of almost every thing he had in the world. He moved on to the place, however, used what little means he could scrape up to go on and raise crops, and then became bankrupt. The men who had robbed him just laughed when he tried to get them to stand by what was only a verbal agreement. If you want to buy property, talk with the farmers who are working the land, and not with the land speculators.

In regard to the luscious melons grown around Rocky Ford, we were surprised last season to see that some of them had made their way into our Medina groceries. They were snapped up at once at an advanced price because of the world-wide reputation of these same melons. Permit me to add that we have been having quite a little business in the way of making crates for cantaloupes to be shipped to melon-growers, by the carload. You see there are choice and valuable localities for growing crops under irrigation; but you do not, as a rule, find them in the hands of the land speculators.—A. I. R.]

TOMPKINS COUNTY BEE-KEEPERS' CONVENTION AT GREENFIELD, N. Y.

My Trip Through Another One of the Great Honey
Counties of York State; the George Junior
Republic.

BY ERNEST R. ROOT.

You will remember that I left Groton with Mr. Miles Morton, in a buggy, to attend the convention at Freeville, which I had been invited to attend; and that, on the route, we stopped to take in one of Mr. Morton's portable house-apiaries, and take a snap shot or two, the result of which has already been given on page 807. Leaving the house-apiary we proceeded on our way to Freeville, a small town located at the junction of two railroads. As it is a sort of pleasure-resort, and is so centrally located, it was selected as the place of

meeting of the Tompkins Co. bee-keepers. Arriving there, we found that the bee-keepers had already begun to assemble; after a general hand-shake and an elegant picnic dinner, we were called to order by Pres. Wood. I will not attempt to rehearse the discussions that took place at that time, as they are now too dimly fixed in my mind. I do remember that I was given two or three friendly "shots," which I suppose were designed to wake me up. I was suffering at the time from a horrible cold—a sort of influenza that I had caught on my return from the Seneca Co. bee-keepers' convention some two or three days before. A night ride on the bicycle, and then afterward, wet with sweat, sitting in the delightful breeze of the cool summer air, so refreshing and grateful, gave me what I deserved.

There were present at that convention a number of bee-keepers who had colonies aggregating from 300 to 1000, and who were just full—yes, brimful, running over—with facts and experiences in regard to bees. Both during the convention and after it I made it a point to pump those fellows as much as I could; and some of the things I have already given to the bee-keeping world have come from those same men.

The president, Mr. Wood, after giving me an introduction, told me that I was expected to occupy the rest of the time; and then those bee-keepers, with their colonies running up into the several hundreds, began to "pump" me. I suspect I told them all I knew about bees, and perhaps some things I did *not* know. Taking it all in all, we managed to have an interesting and lively time. Before the adjournment of the convention, I secured, as a matter of course, two views of the bee-keepers.

THE MAN WHOSE BEES DID NOTHING BUT SWARM.

At this convention there was a unique and interesting old gentleman named Luther Greenfield. He had a hundred or so colonies within a quarter of a mile, and invited all the bee-keepers present to visit his apiary. About half of us accepted the invitation. Mr. Greenfield acknowledged that he for some reason could not get as much honey as the other fellows who boasted of their big crops. He almost intimated, in his good-natured Yankee nasal twang, that he did not believe that "them 'ere fellers" could get any more honey than he. In the course of a good-natured banter it leaked out that he had anywhere from six to twelve swarms out at one time during the height of the honey-flow. "Why," said he, "I can get swarms, plenty of 'em; but somehow I can't git any honey like you fellers claim."

The "boys" rather poked fun at him a little, because he had, within half a mile of his apiary, one field of buckwheat aggregating a *hundred acres* or more, and various other small fields within range of his bees. I think it was Niver who called upon Mr. Greenfield at one time, and found him employed in the apiary, trying to take care of about six or eight swarms in the air. He was barehanded, bare-

footed, bareheaded, and baldheaded in the bargain, and the "bees stinging just like Jehu." "What in Sam Hill made the bees swarm so," he could not understand.

"Why," said Niver, "your hives are too small, and your acreage of buckwheat is too large. Give them room—give them room."

While the bee-keepers were in the yard I took one or two snap-shots, one of which I reproduce herewith. Mr. Greenfield himself is in the center of the group, with smoker in hand, just proceeding to open one of his hives. Veil? He did not want any thing of the sort. What did he care for a few stings? At the extreme right of the picture, with white straw hat, is Mr. W. L. Coggs shall—the man who manages, with two helpers, a thousand colonies in nine different apiaries. The furthest yard, I think, is some forty miles from his home, and the nearest is some three or four. Just in front of Mr. Coggs shall, with his hands behind him, with straw hat, is the secretary of the convention, Mr. J. L. Kinney. Just in front of Mr. Kinney's right, with white beard, light suit, is Mr. Miles Morton, who needs no introduction to our readers.

I was introduced to all of the bee-keepers there present; but for the life of me I can not remember another one save the young man at the left of the picture, who has a straw hat in his hand. That is Mr. Coggs shall, junior, who helps his father considerably in the management of their extensive apiaries.

HARRY HOWE, THE LIGHTNING OPERATOR.

Just back of Luther Greenfield, with his head obscured from view, is Mr. Harry S. Howe, of Ithaca, N. Y., but formerly in the employ of Mr. Coggs shall, of West Groton. Mr. Howe is a young man in whom Mr. Coggs shall has taken a special interest—in fact, almost brought him up. Harry was bright, active, and earned the title of being one of Coggs shall's "lightning operators." "Why," said Mr. C., "that boy could handle more colonies, and extract more honey—in fact, do any other work among the bees in a given time—than any other man or boy I ever knew." Harry has had to work his way through life from a boy up. He worked days and studied evenings, and latterly has for a number of years taught school. It was he who subsequently showed me through the buildings of Cornell University; and while he did not profess to be one of its students or graduates, he seemed to be well up in some of the departments of learning of that institution. But I suppose one reason why I was attracted so strongly to Harry was because of the fact that he is an ardent bicycle man. While I was with him part of one day we talked not only bees, but bicycles and every thing connected with them.

But to return. I took two or three snap shots of Harry as he was riding on his favorite bike—one he made himself; but, unfortunately, it was near the end of the film, and the pictures were "no good."

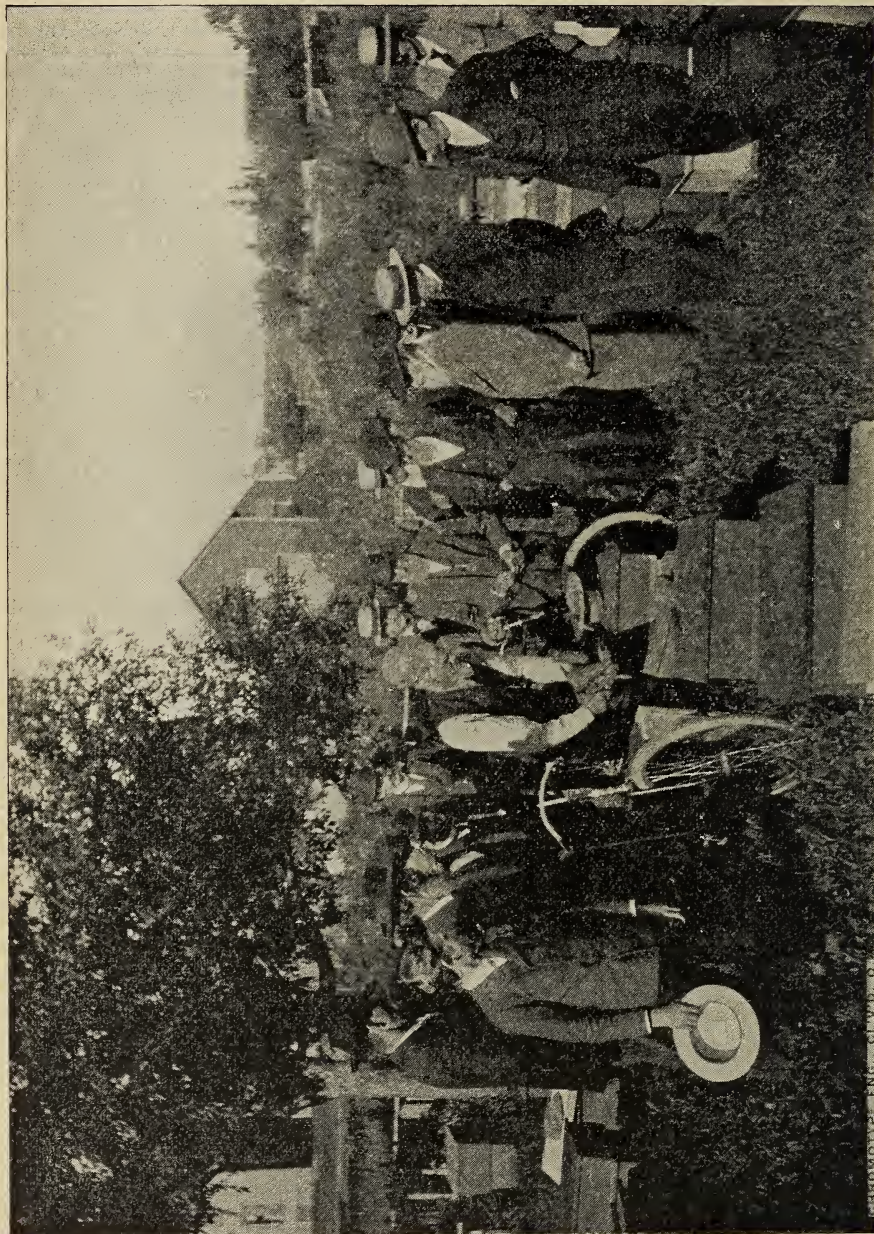
After I had taken the view shown herewith, I proposed that Mr. Greenfield "hare up" his bees, and while they were making a "scatter-

ation" among the bee-keepers I would take a snap shot. Mr. Greenfield readily did the "haring up"—yes, he did it to perfection—and the bee-keepers did the rest—performed the windmill act, jumped over hives—in fact,

"streaks" were so badly mixed up that one could not tell which from t'other.

THE JUNIOR REPUBLIC AT FREEVILLE.

After we had enjoyed ourselves at the Greenfield apiary a few of us paid a short



TOMPKINS COUNTY BEE-KEEPERS AT THE APIARY OF LUTHER GREENFIELD, FREEVILLE, N. Y.

retreated in a hasty and inglorious defeat. My camera caught the whole performance; but, unfortunately, my shutter was not set for quick work; and the consequence is, that every man who started to run left a streak of himself, as it were, on the picture, and the

visit to the George Junior Republic, situated about half a mile from Freeville, and on top of a magnificent hill which commands a fine view of the surrounding country. The George Junior Republic—what is it? To many of you it needs no introduction. A certain Mr.

George, a young man of about 30 or 35 years of age, conceived the idea of taking up a lot of street waifs from the cities. He had no difficulty in securing this sort of material, you may be sure. By dint of hard work he managed to get men of means, and churches, interested. Some cheap buildings were constructed at Freeville, consisting of dormitories and other necessary buildings. The scheme was to organize these boys into a "Junior Republic." They were to have a president, vice-president, senate, house of representatives, police force, detectives, and all the other accouterments of a well-equipped government. The scheme was carried out, and the boys not only liked the idea of bossing themselves, but actually governed themselves in an admirable manner. I was told that some of the worst boys made the best police officers. They are taught civil government, given an inkling of some of the great questions of the day, coin their own money, establish banks, make their own laws; arrest, convict, and carry out their own penalties. Contrary to what one might expect, the scheme has proven to be a grand success, both from an educational and a moral point of view.

I had often read about this institution, and it was a real pleasure to see the thing itself, and to shake hands with the founder, Mr. George, a man whom we must all admire.

Just as we were about to leave, one little chap (our guide) spied a button that was on Mr. Niver's coat, which bore the words "Single Tax" upon it. Cocking his eye at the button he turned and said:

"What's single tax?"

"That's too big a question," said Mr. Niver. "I could hardly answer it now. But I suppose you could tell us all about free trade and the tariff?"

"You bet," was the response.

THE NEW SECTION AND FENCE.

Comments and Suggestions.

BY DR. C. C. MILLER.

It is not always easy to get at the real merits of any new thing until the time comes when it can hardly be longer said to be new. On the one hand, some are so enthusiastic about it that they see merits that exist only in imagination; and on the other hand there will be those who think they clearly foresee grave evils sure to result from the adoption of the new thing—evils which never come to pass. As an illustration, I may refer to the introduction of comb foundation some years ago, and a still more marked case of recent date is the drawn foundation.

Now comes a fresh candidate for popular favor in the shape of a no-bee-way section with its accompanying fence separator. It seems a little strange that so far the only words spoken of this innovation are words of commendation. Possibly the time for adverse criticism is not yet. Certainly you, Mr. Editor, have presented the merits of the case not only strongly but enthusiastically. If it's a

good thing, you have a right to be enthusiastic.

If you will allow me, I should like to discuss the matter from my standpoint—not by any means from a disinterested standpoint, but from the standpoint of one deeply interested. To get right down to the bottom, the question with me is whether the change will put more or less money in my pocket in the course of the next five or ten years. And I take it that, in the long run, you and I are not apart in that; for in the final analysis, whatever is a good thing for me as a honey-producer is a good thing for you as a manufacturer.

On page 817 you enumerate reasons that have induced you to make the fence and the no-bee-way section a part of the regular hive-equipments. That is equivalent to saying those are the reasons why comb-honey producers should use them.

Your first point is that, in the long run, the fence separators are cheaper than the old ones. If that point is fully settled, you have pretty well settled the whole question. I don't know that you are wrong about it, but I'd like to be more sure you are right; for it is one of the points of most importance. You say the fence lasts for years, while the old separator, after being used a year, had to be discarded for a new one. I confess I don't see why the fence will last any longer than the plain separator. The old separator will last for years. I think you will find a good many so using them. As a matter of economy, some throw them away after one year's use because it costs more to clean them than to buy new ones. I think it will cost as much to clean a panel of fence as to clean a plain separator. If, then, I am to clean separators, and if it costs as much to clean one kind as another, there can be no economy in the fence unless I can buy it for less price than the other. The fact that it may be still cheaper to throw away the old separators and get new ones cuts no figure in the case, unless it be an argument in favor of the old separators. Now, if we know the price of the fence we can tell whether it will be economy or not. It may be economy for some and not for others, for all do not now use the same separators. It depends somewhat on the super. Some are now using separators that cost \$4.00 or more a thousand, while others have those which cost \$2.00 or less. However, if there are enough other advantages we can afford a little more expense, as we have done in many other things.

Carefully looking through your No. 2, I'm not sure I can raise any objection, although only trial can determine whether prettier sections can be produced with the fence. The only experience I have had in that line is with the Danzy super, which alternates the fence with the common separator. In some cases the sections are slightly ribbed opposite the spaces in the separator—not a serious detriment, but still a detriment. Possibly this may not occur with narrower spaces, and I have an impression that the sample of fence I saw in Chicago has smaller spaces than have the separators in the Danzy supers, for these last have spaces a little more than $\frac{1}{4}$ inch. Any

thing that tends toward more free communication makes the bees more willing to enter, and, what is perhaps of as much consequence, more willing to remain—a point you do not mention. I suspect that, when a cold night comes, the more free the communication throughout, the less likely the bees are to desert the super.

Your third point, upon which you are not positive but hopeful, is that the fence will largely do away with passage-holes in the corners. I have just looked through the sections built in the Danzy super, every alternate separator being a fence. In every case the lower corners were unusually bad. The smallest holes were a shade less than half an inch long, but for every one as small as that there were three that were more than an inch long. Then I examined 12 sections filled between common separators, these sections having been thrown out of first class because not quite finished out, and I found 15 holes in the 48 corners, these holes being much smaller than the others. But it will not do to base a general principle upon so small premises; and it is only fair to add that the sections in the first case had only small starters at the top while the others were filled with foundation. Possibly this last might fully account for the difference; but it leaves the fact that, in some cases at least, the alternate separator being a fence, and only starters used, pop-holes in the corners will be bad.

The fourth point, that the fence is stronger, doesn't make any difference with me. I have never had any trouble on that score. Very likely it may be a fine thing for you who persist in using something inferior to a T super. It's a good thing to have the section-holder improved in some way.

Your fifth point is one that can not fail to secure attention, that the new sections will demand a better price. Whether that will hold good in all cases is a matter to be determined. You say the new sections look so much better. I put a lot of Danzy sections in two rows, the one showing the side next the fence, the others showing the side next the common separator. I was a little surprised to find less difference than I expected; and upon asking others, who knew nothing about what I was at, they didn't seem to see any difference till I called their attention to it. But isn't it possible that we have become so used to the leanness of the ordinary section that we are no longer impressed by it? I remember when I first used separators that I felt disappointed in the appearance of the sections as compared with sections without separators; and I distinctly remember, in a convention, James Heddon arguing against the use of separators, saying the sections had a lean look; and he threw a lot of meaning into that word "lean," as he drew it out to some length.

But whatever else may be said, if it remains a fact that the sections in question sell more readily or at a better price, then we can hardly afford to do without them. For if there is any advance in price at all, it is very likely to more than offset the small additional cost. We have testimony from more than one source

that such sections do sell better. Until there is rebutting testimony, we must give this some weight.

I suppose I shall shock you by saying that I don't see much weight in your sixth point. It is true, as you say, that "it is not an easy matter to clean out the insets of the ordinary old-style sections." I don't want to clean them out. They don't need it. "You know better?" Hold on now, and don't get excited. I didn't say your sections don't need it, for they do. But mine don't. You see, in a T super there is nothing touching the insets, so nothing to invite bee-glue into cracks. For you, no doubt, it will be an improvement of some consequence. Any thing that helps to obviate the defects of the section-holder will be a good thing for those who have nothing better.

Your seventh point holds good for those who use section-holders. Any thing to make their burdens lighter should be welcomed.

Point eight is worth figuring on—any thing that saves money in direct outlay. And I confess that, after a little figuring, it looks more important to me than it did. Take the popular 12-lb three-row case at \$7.00 per hundred. One hundred cases will hold 1200 ordinary sections, or 1500 of the new sections; 1200 of the new sections will take 80 cases. There's 20 cases, or \$1.40, saved on every 1200 sections, or on every hundred cases one has to have in the old way. Let's see what that will do toward evening up on the separator business. It takes 5 separators in a 24 section super. That's 1000 separators for 4800 sections. As we saved \$1.40 on every 1200 sections, we'll save \$5.60 on 4800 sections—that is, the saving on cases will give us \$5.60 to apply on every thousand separators. Say—why don't you tell us something about what the fence will cost? If you can furnish it at an advance of no more than \$5.60 per 1000 over the price of the old separators, then we'll make money by using it, even if we can get no more in price for our honey. For the \$1.40 isn't all we save on the 1200 sections. There's the making of the cases, the extra time handling and weighing, and that amounts to quite a little when one is rushed to get the crop shipped.

Probably you think I'm trying to find a good deal of fault with your new arrangements. Well, you see if some one didn't do something of the kind you'd be so set up that no one could live with you. But please don't resent it to such a degree that you'll say you can't furnish fencing that will fit T supers. For fear you should, I'll just mention that, in some cases, the saving of room will be quite an item. I mean the room the honey will take after it is in shipping-cases. And another item is that sections with the inset are liable to have the comb injured when standing in a case or on a table, by means of the side of another section being shoved against them. With the new section this is entirely impossible so long as both sections sit flat on the bottom.

By way of a parting word, I may say that the new sections will give some occasion to grocers' clerks to indulge in profanity. What

kind of a chance is there to get the first section out of a case when all the space is filled up, and no room to squeeze your thumb nail between the tops of the sections?

[Doctor, you haven't read all of GLEANINGS. On page 828 you will find the cost of the new fence stated. While it is true it will cost more than the old-style plain separator, it will last longer and will be as cheap or cheaper in the end. It is also stronger and more durable. But right here you stick in a question-mark. The ordinary plain saved separator is made of one strip of wood less than $\frac{1}{8}$ inch thick and $4\frac{1}{2}$ wide. There are no cleats—in fact, there is nothing to stiffen it; and the constant handling of these, in and out of supers, has a tendency to break more or less of them; and the entire lack of stiffening causes some to curl and warp, rendering them useless. The new fence will be stronger than the old separator, just as a panel door is stronger than one wide door of the same width and length of one board, or as a cable made of strands of wire is stronger than a rod of iron of the same diameter. The new fence is made up of four slats and eight cross-cleats. If there is a slight tendency in one slat to twist or warp, that tendency will be counteracted or corrected by the next slat, and by the cross-cleats binding the whole four together.

With regard to the matter of scraping or cleaning, that will be much simpler with the fence than with the old separator. All that is necessary is to scrape the cross-cleats—an operation that needs to be done only once in two or three years, if I am correct.

As to the third point, regarding corner holes where you also raise a question mark, I might say that I looked over a thousand pounds or so of Morton's honey—that is, I picked up sections at random from different supers and different places; and the remarkable part of it was that there were not any corner holes in any of the honey, so far as I can remember. This seemed to me very significant; and after I arrived home I fell to thinking about it more and more, especially when friend Danzenbaker showed me some of his slat-separator honey. I looked over quite a lot of it, and in appearance it was about the same as Morton's.

With regard to the better appearance of the honey in plain sections, I am rather of the opinion that, if you will place that same honey, one lot in one shipping-case and one lot in another, behind glass, your women-folks will detect the difference. I have shown, to quite a number, the two cases that were illustrated in GLEANINGS, and the verdict has been every time that the honey in the plain sections looked better; but for what reason the observers could not say, as they were not experts in judging honey.

So you do not see any weight in my sixth point, namely, the advantage of the plain section in point of scraping and stain? The best way to convince you would be to take you through York State with me, where propolis is smeared over every thing. There are some localities where honey has to remain on the hive for a considerable time, because the flow,

while continuous, is very moderate. It is under such conditions that the insets of the old-style sections are badly stained.

While the matter of scraping may not be of any great importance with you, I am sure that, with 99 other bee-keepers, it means much.

We expect to be able to furnish fences for T supers and every other sort of super; but in the case of irregular or odd-sized ones, of course a corresponding price will have to be charged.

With regard to your last paragraph, I grant it seems as if the new plain section would be more difficult to remove from shipping-cases; but the fact is, all shipping-cases should be provided with a follower and wedge, both for safety in shipping and for convenience in taking irregular sizes of sections. For example, our regular 24-pound shipping-case, by the use of the follower and wedge, or by the omission of either one or both, is adapted to take either 7 to the foot, $1\frac{1}{2}$, or $1\frac{3}{8}$ sections, or even two inches. Well, then, when the grocer receives his cases of $1\frac{1}{2}$ sections, all he has to do is to remove first the wedge, and then the rest is all easy; and speaking of wedges reminds me that twisted paper stuck in between the side of the super and the follower is the very best form of wedge that can be devised. It answers as a very nice cushion as well as a wedge.—ED.]

BEAN HONEY AND BEAN-GROWING.

BY C. A. HATCH.

To the average bee-keeper of the Eastern States, bean honey seems to be a myth—one among the many conjured up in the fertile brain of a Pacific-coast resident; and talk of bean-fields suggests to him only the garden-patches of his neighbors, or possibly a field of an acre or so grown by some ambitious one; but to think of a farmer putting his whole farm into beans, and lima beans at that, is unheard-of rashness. But here in California a good many things are possible that in the East would be quite impossible. Not only do farmers plant their whole farms to beans, but very large farms at that. One ranch near Ventura has 1900 acres, mostly in beans. The crop of this one ranch was 19 carloads one year. I saw 10 two-horse teams cutting, and 25 men shocking beans on their ranch this year, at one time.

How would it seem to see rows of lima beans one mile long? Impossible! you say; can not get poles enough for so many. But there are no poles used, and the large running lima is the kind grown, too, mostly. Some few Burpees are grown, but the large kind give the best satisfaction.

Ventura is called the bean county, and rightly, for three-fourths of the beans grown west of the Rocky Mountains are grown within her borders. Other parts of the State grow other kinds, but Ventura stands at the top for limas.

Thirty thousand acres is about the amount planted this year, which is 10,000 acres less than last year. The crop last year amounted to 1700 carloads. One thousand pounds is

called a good crop; but 2500 pounds has been grown on one acre without irrigation.

The beans never, as a rule, have a drop of rain fall on them from the time of planting to harvesting. The moisture in the ground, and the ocean fogs, furnish all the moisture; no rains to hinder cultivation or stop harvesting; but weeds grow all the same, rain or no rain, and cultivation must be prompt and thorough.

The beans are planted in drills about three feet apart, and 10 to 12 inches apart in the row, by a machine putting in three or four rows at a time. Cultivation is done by horse power, and but little is done by hand; but if weeds get into the rows, hand-hoeing is necessary, for few weeds are allowed to grow to take moisture from the main crop; and after the beans are cut and cleaned off, a sheep would almost starve on 100 acres, so clean are the fields kept.

Harvesting is done with a sled-like machine having two knives extending in and sloping backward, one from each runner. Each knife cuts one row, and an arm of iron placed just back of the knife throws the two rows together. Men follow with forks, and bunch the beans, where they remain until hauled to the thrashing-floor or thrashing-machine.

Thrashing is done in two ways—by a thrashing-machine or by tramping out with horses or "floors" prepared by smoothing off a piece of clay ground, wetting it so as to make it soft, then pounding until hard and smooth. In this method a disk harrow is frequently used to draw over the beans, one man following close behind the harrow and horses, with a fork to loosen, and toss the vines toward the center of the track around which the horses move. When enough are tramped out, the rubbish is cleaned out by a "cleaner"—a kind of fanning-mill suited to the business.

All beans are handled in gunny sacks, which go with the beans when sold; in fact, all kinds of grain, potatoes, and every thing that can be sacked, is put into these same sacks, which, by the way, are the source from which comes most of the smoker fuel used by the California bee-keepers.

Bean honey is white and of fine quality, but not positive in flavor, like clover or basswood. It never gets as thick as sage honey, and is prone to candy quickly.

The honey crop from this source is rather uncertain, as it seems to be very sensitive to weather conditions; too much sunshine dries the blossom, and hence dries the honey; and too much cloud and fog prevents the bees working, even if there be honey. This year the bloom was abundant, but the right conditions of weather seemed to be lacking. Just what those conditions are, it is hard to tell.

The greatest benefit to be derived from this source, it seems, is to make it a source of food supply in years of failure in other honey-plants; for, no matter how good a location one might have for bean honey, its uncertainty and shortness of flow would hardly justify any one in running an apiary for that kind of honey alone. The very source of prosperity to the bean-plant (ocean fogs) seems to be honey-destroying to other plants. The fodder, or

bean straw, from lima beans, makes excellent feed for dairy stock; and horses, when accustomed to it, do well on it. The straw is baled and sold the same as hay.

Pasadena, Cal.

[Friend Hatch, you have given us several points of value to bean-growers here in the East. First, beans are a dry-season crop. I have noticed for years that drouth never seems to hurt beans at all, but rather seems to do them good when the soil, cultivation, etc., are as they should be. Again, the old-fashioned pole lima beans give more bushels to the acre, at least so I take it, than Burpee's bush lima. But they are so much less trouble here in the East I think we had better take the Burpees, even if we do not get so many, especially where we are growing them by the acre.]

Very likely your great bean-farms have been the means of bringing about the present low prices on all kinds of beans. We see California limas quoted at 3 cents per pound. That would be less than \$2.00 a bushel. I have often wondered why these California limas would not be just as good to plant as seed beans that cost from four to five dollars a bushel here in the East. Has anybody tried it? And I wonder, too, why beans would not succeed in any desert land where it never rains at all. Your suggestions in regard to the ocean fog perhaps hit the point at least partially.

Finally, if it is a little discouraging to the grower to have beans so cheap, it is a great blessing to the hungry and starving people in different portions of this world of ours. I have been told that a pound of beans will keep up a man's strength longer than a pound of any other grain or vegetable, or any sort of meat. I hear just now they are talking about getting beans to Alaska, to save the starving miners. We are very much obliged to you for what you tell us about bean honey. It seems that the bee-keeper is not always absolutely sure of a crop anywhere on the face of the earth, even where there may be thousands of acres of beans, alfalfa, or white clover right in bloom.—A. I. R.]

LARGE ENTRANCES TO HIVES.

Especially Adapted to Wintering.

BY THADDEUS SMITH.

When I was a boy, some 55 years ago, my father kept quite a number of bees. It was, of course, before the invention of movable-comb hives, and the bees were in the old-style box hives. At that time the bee-moth was very numerous, and it was supposed that the moth-worm destroyed many colonies of bees; and hence inventors turned their attention to making moth-proof hives and patent moth-traps, which were offered to bee-keepers as sure remedies against the ravages of the moth.

My father was an experimenter in this line. The worms were found in large numbers under the edge of the hive where it rested upon the bottom-board, where they had taken refuge when dislodged from the comb. I was re-

quired to go around to the hives early in the morning, raise the hive, and kill the worms. Chips were placed about the entrances for the worms to hide under so that they could be killed. He noticed that the worm, in making its web or cocoon, cut away some of the wood near it and worked it into the cocoon. He reasoned that, if they had no hiding-place, and no wood to form their cocoon, they would either die or be destroyed by birds and poultry. Acting upon this idea he raised the hives $\frac{3}{4}$ inch above the bottom-board by driving a big fence-nail in each corner of the hive, leaving the ends projecting downward $\frac{3}{4}$ of an inch, and, removing the bottom-board, put each hive upon a smooth flat stone. I don't know that this was an effectual remedy for the moth, but it gave the bees a good chance to carry them off, and we did not have to kill the worms any more; and it is a good case of a large entrance. This all-around entrance was never closed or contracted, winter or summer, and, so far as I know, the bees never suffered from too much ventilation. I do know that many of these hives remained in that position from 8 to 10 years without change. I never knew loss from wintering unless there was a deficiency in honey. How about the difficulty these bees would have in getting up into the hive? Well, I never saw them climb the four iron stairways, but "they got there all the same."

Pelee Island, Ontario.

[I have yet to hear of one bad thing against large entrances; and, on the other hand, we are getting letters every day indorsing them. In a year or so we shall all wonder how bee-keepers *could* be so stupid as to get along with small entrances for so many years. One reason, I think, for making the entrance only $\frac{3}{8}$ deep was to keep the mice out. But what does the mere matter of mice amount to in comparison with the other great advantages of better ventilation, prevention of bees loafing on the outside during the height of the honey-flow, and, to a considerable extent, the reduction of swarming? Mice! They ought to be trapped, or held in check by cats.—ED.]

A NEW STYLE OF BOTTOM-BOARD.

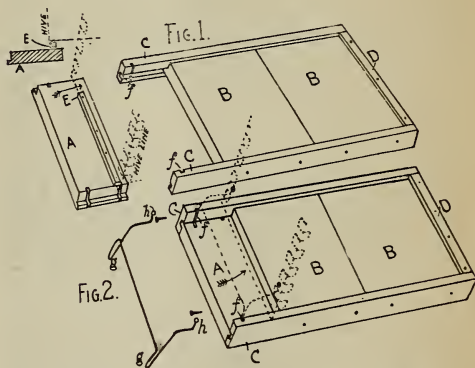
An Ingenious Idea.

BY W. A. CAMPBELL.

Mr. Root:—In reply to your favor of Oct. 9, offering to illustrate my new bottom-board in GLEANINGS, I shall try to make plain the manner of its construction and use.

Fig. 1 shows a bottom with alighting-board lying in front. The boards B, B, are joined together with $\frac{1}{2}$ -inch lap. They are each $9\frac{3}{4}$ in. wide by $12\frac{7}{8}$ long, $\frac{7}{8}$ thick, with tongues on their ends, $\frac{3}{8}$ in., let into grooved side-cleats, C, C. The side-cleats are $\frac{7}{8} \times 1\frac{3}{8}$ in., $21\frac{1}{2}$ in. long. D is a strip $\frac{3}{8} \times \frac{7}{8}$ in., $12\frac{7}{8}$, nailed to B. A is the reversible alighting-board, by means of which three sizes of entrance may be had. It is $3\frac{3}{8}$ in. wide, with projections on ends similar to boards B, B, but a trifle less, that it

may slide freely in grooves. If, in Fig. 1, board A is pushed directly into grooves in cleats, C, C, it gives the regular $\frac{3}{8}$ size of entrance as in the Root bottom-board; but reverse ends and slide in place, and the $\frac{3}{8}$ strip nailed at E comes under the hive-wall, and contracts entrance to $\frac{3}{8} \times \frac{7}{8}$ at E. Next reverse *sides* of alighting-board, as shown in Fig. 2, and you have an entrance $\frac{7}{8}$ in. deep, opening right into space at ends of frames, and extending under their ends $\frac{1}{2}$ inch, or to board B, thence a $\frac{3}{8}$ space to D.



The wire device in Fig. 2 is designed to keep board A in place, and to hold the entrance-guard or blocks and wire cloth when bees are moved. The loops *g, g*, are slipped into holes formed by the junction of saw-cuts in end of board A with those in cleats, C, C, at *f, f*. The eyes, *h, h*, go against hive-wall, and may be secured with a couple of screws for safety in moving bees. For those who do not care to fuss with wire, two wire nails will hold the board to place.

The $\frac{7}{8}$ entrance ought to afford ample ventilation for a large colony, and greatly facilitate the hiving of swarms. In hiving swarms I would remove the alighting-board and set the hive right on the ground.

If Mr. Danzenbaker would combine my reversible alighting-board with his reversible-bottom-board idea so as to give the $\frac{7}{8}$ -deep side for cellar wintering he would have a bottom with a wide "range of adjustment" embracing many desirable features. However, in the South, where we winter on summer stands, I hardly think we need the $\frac{7}{8}$ space under frames full width and length of hive. We need only to contract our entrances in fall, which may be quickly and easily done with my reversible alighting-board, whether the bottom-board be fastened to hive, or loose.

Cisco, Ga., Oct. 23.

[This bottom-board is very ingenious, and when it first came to our notice we were very much taken with the idea. Yes, we almost thought of adopting it; but we came to the conclusion that a deep space of $\frac{7}{8}$ inch under the whole brood-nest, as afforded by the Danzy bottom-board, was very important—almost as important as a deep entrance. Then it seemed to us also that the Danzy board would be

about as easily reversed as this entrance-strip. For these and other reasons we decided on the Danzy for 1898.—ED.]

THE MARKINGS OF QUEENS AND DRONES.

Unusual Results in Breeding and Introducing.

BY A. NORTON.

Dr. C. C. Miller.—You may answer this in GLEANINGS:

Is it not generally stated that you can better tell of the purity of a queen's mating by her queen progeny than by her workers—that is, that her young queens will more surely be striped if they are not pure Italian, while her workers may be very yellow? I have seen such statements, though I believe the Roots lay much stress on uniformity of workers and less on queens. But what do *you* think of this? I have a Carniolan queen from a pure one that I got from the East—a fine tested one. My own drones were golden Italians. Many colonies of black bees are near by in hives and trees; and one neighbor, $1\frac{1}{2}$ miles off, has Italians, blacks, and all grades of hybrids. This young Carniolan queen's workers are, about two-thirds of them, black, without a sign of yellow, and about one-third of them yellow, showing generally three bands. When her bees first began hatching out last summer I thought she had mated with one of my five-banded drones. But when I see now the preponderance of bees that are all black, I wonder if she did not meet a drone having black and yellow blood mixed. Having another colony to which I wanted to give a queen at once, I recently gave them this same Carniolan, and sent east for an Italian to replace her in the mixed Carniolan colony. As said queen was long in coming, I let the first young queen hatch out that the virgin or bees might make surer work than I would of destroying the other cells. When the queen came from the East I destroyed this virgin, and found her to be as yellow, clear to the tip, as any golden Italian virgin I ever saw—no, but almost as yellow. She would have passed for an A1 golden-yellow queen.

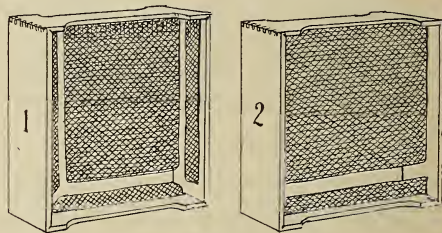
2. Would you think from the workers that the mother-queen met a pure or part Italian drone?

3. Do you consider the yellowness of the young queen as somewhat remarkable?

4. Is the following a strange instance for a dry time when no honey had come in for weeks? Colony No. 1 was queenless, and had been refusing a five-banded Italian queen from the East for several days. Colony No. 2 was but three or four feet away obliquely—or to the left, and behind No. 1. The hybrid queen of No. 2 had been killed a few days (only four or five days), and when I killed her I could not see a sign of eggs or brood in any stage in the colony. It was dry, and but few colonies were breeding any. One afternoon, just at sunset, I gave No. 1 a thorough fumigation with tobacco smoke, and released the queen they had been so persistently refusing. Just before dark I searched the combs,

but could not find her. Every day thereafter for about six days I searched carefully, but couldn't find her, dead or alive, in the hive or on the ground. Finally, having need for some reason to open No. 2, I found therein a fine bright yellow queen (looking much like the one I thought I had lost), and brood nearly ready to seal, as well as eggs, etc. Since then her progeny prove to be pure five-banded. When I released her in the hive, after the fumigating (I had taken her out during the process), she must have left at the entrance during the turmoil, taken wing, and alighted at the other queenless colony, which must have readily accepted her. Is not this a little remarkable for the dry time of year?

5. Concerning your remarks in both *American Bee Journal* and GLEANINGS about bottom starters, I tried them by way of experiment, and also starters on all four sides, to experiment, consisting of a top starter reaching to within an inch of the bottom starter, and short enough to allow of narrow (about $\frac{1}{2}$ inch) starters on each side. The bees finished the sections about like this, leaving the same



gaps between the finished combs of honey as were at the outset between the pieces of foundation in the starters. Did you ever have any experience like it?

A. NORTON.

Monterey, Cal.

[To these questions Dr. Miller replies:]

1. Your first question is one which I hardly know enough to answer; but I the more cheerfully make the attempt because the large experience of the editors will enable them to correct any misleading statements I may make. I have always had the impression that not nearly so much reliance was placed upon the appearance of the queen progeny as on the worker progeny of a queen. If my memory is correct it was not an uncommon thing in the earlier years, after the introduction of Italians, to have it said that it rarely occurred, if ever, that a queen of Italian blood would duplicate herself with any degree of uniformity. Her royal progeny would vary in appearance, some of them lighter than herself, some darker, while her worker progeny would be so uniform that no one individual could be distinguished from the rest. It is also a fact, if I am not mistaken, that, among the queens imported directly from Italy, there is great variation, some of them being light in color comparatively (perhaps never so light as may commonly be found after a few years' breeding in this country), and others almost if not quite as dark as a common black queen. It seems to me, however, from the limited op-

portunity for observation that I have had, that, while an Italian queen may be as dark as a common black, there is a difference in the shades of the two—the Italian, while being as dark as the other, having a rich (perhaps mahogany) tint not shown in the black. And yet these imported queens of such different appearances would all have the same worker progeny, of the same color, and the same number of bands. Now, if there is no mistake about these imported queens of different looks being all of true blood, there would be nothing but what should be expected that their royal progeny should present differences of appearance, while the worker progeny would be true to type.

I have been called to account for saying that no one could decide from the looks of drones or queens as to the purity of the stock, but with my present light that is my belief. To an inquirer I made the reply that I could not give the distinguishing marks of a pure Italian drone; and when scouted at by a queen-rearer for giving such a reply I asked him to give me those distinguishing marks, but never got any reply.

2. If you mean by Carniolans the gray bees that were first known by that name, and that the workers that you say were black were the same gray black as the full Carniolans, then it seems pretty plain that an Italian drone was met, as is usual in the case of a first cross, part of the workers taking after one parent and part after the other. And with that view of the case the bright-yellow virgin would be nothing strange. But from your asking the question as you do, I suspect that you mean the black workers were unlike the regular Carniolan workers, but like common blacks, in which case I don't know enough to reply. The workers being part yellow and part black, the drone might be of mixed yellow and black blood, but in that view the Carniolan blood of the mother is left out of the count altogether, and that leaves me at sea. Perhaps the editor can make matters clear.

3. Probably unusual at least; and yet whatever will account for the presence of the yellow workers will account for the yellow queen. She took after her sire.

4. The usual thing would have been for the bees to ball the queen when you released her from the cage. She did the unusual thing by running away from her pursuers and escaping from the hive. After that she entered hive No. 2, where she stood a pretty good chance of being killed, for the bees would be more likely to kill a queen that had been caged and chased; and, it being a dry time when they were not anxious to have a queen laying, her chances of life were thereby lessened. Still, they were queenless, and the odd chance came her way. Quite possibly she would not have been so well received in No. 2 if you had had a hand in the affair. But they were left entirely to themselves; and, although they may have balled her at first, being left entirely alone they released her.

5. No, I think I never had a similar experience. The only way I can think of such a thing happening would be that honey was not

yielding very well, and as soon as the bees got well started on the foundation the flow became still more scant, making the bees finish out and seal over what they were already working on. I can hardly imagine such a case occurring in a good flow.

I may say, in passing, that I should consider it very objectionable to have an inch space between top and bottom starter—one-fourth inch at most, and then the bees will join the two starters together before the bottom starter has a chance to lop over or be gnawed down.

Marengo, Ill.

[I could adopt every paragraph of Dr. Miller's answer above as an expression of my own belief and experience, and, for that matter, I believe every queen-breeder could do the same.—ED.]



KEEPING SURPLUS QUEENS OVER WINTER.

Question.—Will you please tell us in next GLEANINGS how to keep surplus queens over winter? If it can be done it would be very profitable to have a few extra queens, to take the place of any that might turn up missing in the spring. I generally supply many of my colonies with young queens in the fall, killing the old ones; but if I could only keep the young ones over winter, I should prefer it to doing as I have done in the past. I am thinking of caging several in a queenless colony. Will that plan work well?

Answer.—It is very doubtful about your succeeding in keeping a surplus of queens over winter by the plan you suggest, especially if you live north of latitude 38°, unless on the Pacific coast. In my younger bee-keeping years I tried almost every way I could think up or hear of to keep a surplus of queens over till spring; but to make the thing a practical success, I was obliged to have a colony of bees strong enough to occupy at least three spaces between combs, at this time of year. With what is termed a "four-frame nucleus," and by setting the same, with about ten pounds of honey, in the four frames, in the cellar, as early as November first, I could generally succeed pretty well till they were set out in the spring, and sometimes they would pull clear through to the honey harvest and build up to full colonies; but it would happen more often that they would rapidly waste away during the last half of April and in early May, till they would die entirely, or be robbed out by stronger colonies. Where I could tell about failing queens thus early, I could kill them and unite these little colonies with their young queens with the colonies from which I killed the queens. But I could see little in favor of this, beyond what would have been had I killed the poor queens in the fall and done the unit-

ing at that time. Later on I was anxious for a surplus of queens in the spring, that I might fill early orders therewith, instead of taking queens out of my strong colonies, to the great disadvantage of the same, that customers might promptly get their queens. And, being extremely anxious along this line, I tried many plans, the one our questioner proposes being among the number.

With nearly all the plans tried I could get along very well till about February, when colonies having several queens caged in their hives would begin to get uneasy, and die with diarrhea, or they would consume all their honey in and about the cluster, and move off and away from the caged queens "to pastures new," leaving the queens to die in their cages. Then I tried little nucleus-boxes, such as most queen-breeders used in raising queens in the early seventies, the same holding three or four little frames six to seven inches square. I would see that these little frames had three or four pounds of honey, and only about bees enough to consume that amount before spring fairly opened, when I expected to feed them. Four to six of these little boxes were placed over a good strong colony, setting these little boxes right on the frames, and fixing it so the bees of the strong colony would, or could if they were so disposed, cluster all about the bottoms and partly up the sides of the boxes, providing a way for the bees in the boxes to get out without mixing with each other or with the colony below, should those dying of old age wish to do so.

The little boxes were now covered all over with woolen blankets, and a hood or cap put over all, when it did really seem that they might go through the winter all right, in a cellar whose temperature never went lower than 45°. But with a trial of some thirty or more in this way I got only two through to where they could fly in the spring, while the colonies over which they were placed were lost, or became so weak that they were of little value during the next season. From these and many other experiments, which it would be superfluous to describe, I was driven to the conclusion that nothing could be gained in trying to winter over surplus queens; and if early queens must be had to a greater number than could be spared to advantage from full colonies wintered over, the cheapest and easiest way was to purchase them from the South.

If any reader of GLEANINGS has found out a practical way of wintering over queens to a greater extent than one to each fairly good colony, I wish he would tell us how it is done. If queens can be so wintered that each apiarist could have one extra queen to every ten colonies during the months of April and May, it would be a great help to every beekeeper in the land, providing that the wintering of such queens did not cost more than the results which could be obtained from them during the year. Hence the importance of any reliable information on this point. Don't be afraid to add any "mite" you may chance to have along any line of our pursuit, thinking it will be of so little value that it is not worth giving, for it is the little "kinks" that

give value to apiculture, when they are massed into one great whole.

"Fine building, sir," said a poorly dressed laborer to a man of fortune who was looking at a just-completed stately edifice in one of our large cities. "It took us many a year to bring it to completion; but now it is done it outshines any other building in this city."

"Took *you* many a year!" said the man of fortune, with a sneer in his tone; "what did *you* have to do with it?"

"I mixed the mortar, sir," was the reply; "and without the mortar that stately edifice could never have been completed. You may think me of no consequence; but by the grace of God I was able to add my mite toward the completed whole."

And just so with the structure of apiculture so far as it is now completed. Some have made greater "marks" than others; but we should never have reached the present heights had it not been for those who have "mixed the mortar," adding "here a little and there a little," till bee-keeping, during the year 1897, looms up as a stately edifice beside the small foundation laid a century ago. In helping each other we are giving "a cup of cold water" to some struggling brother; and the Master has said that the one who does this "shall not lose his reward."



PARAFFINE PAPER; HERMETIC SEALING IMPORTANT.

I see by GLEANINGS quite a controversy about paraffine. I had quite an experience with paraffine, not quite in accord with Danzenbaker, nor yet will it quite fit Dr. Miller's Straw on page 802. Reading Mr. D.'s article some time ago about paraffine it struck me as being rather nice. I would use it on my honey-boards for the hive I make (by the way, a hive I wouldn't give for the best dovetail ever made). I spread the paraffine on it hot, using a hot iron to make it penetrate the wood. Some of it accumulated in holes bored for the bees to ascend. On taking the honey from them I was rather surprised to find they had used the little clots of wax (paraffine) as though they were really beeswax, stretching it out into cells, thus convincing me they have no aversion to paraffine, but simply do not glue the parts together because they are already air-tight with paraffine. Dr. Miller's experience of finding glue on top of paraffine may be that, although he used paraffine, the two parts did not go together tight, therefore the bees made it air-tight with propolis.

You know, as well as any one, no doubt, that bees will have every thing tight. I am pretty sure that Danzenbaker is correct. Bees will use no propolis, provided made tight otherwise. Bees have no aversion to paraffine,

as can be proven by rolling some into foundation. It will be found that they will use it the same as wax. Join your honey-board to your hive-body and seal the two hermetically with paraffine, and your bees will certainly use no propolis. LEE L. ESENHOWER.

Reading, Pa., Nov. 25.

[We have tried foundation made with paraffine and of pure beeswax. While the bees will accept the former, it is very evident that they prefer the latter. If you put the two side by side you will see the difference.

With regard to tight sealing, I believe myself Dr. Miller lost sight of this point in his test of paraffine paper. If used at all it must be cushioned down *tight* on the sections, otherwise it will be worse than useless. I am no "stickler" for paraffine paper, for, personally, I should prefer the bee-space over the sections, and the *cover* sealed down with propolis; but when the paper is used it should be applied as directed.—ED.]

USE OF PARAFFINE PAPER ON SECTIONS DEFENDED; GETTING PRIZE HONEY.

On page 734, Oct. 15, is an article by F. L. Thompson in which he condemns paraffine paper in covering sections in supers; and as Mr. Danzenbaker is invited to reply, and he seems to be playing clam to the music, I will say that, in my 15 years' experience in bee-keeping, and two seasons' experience with paraffine paper, with some 200 colonies of bees, for comb honey, I find a saving of several dollars, both in labor in cleaning sections, and better prices for honey produced by the use of the paper; and as I raise honey for the money, that is why I prefer to use the Danzenbaker section and paraffine paper in connection with his hive. Mr. Thompson says it was the combination of the paraffine paper with some other things that produced that prize honey, and that those other things are far more important. Of course, he is right so far as the honey goes, as honey gathered from buckwheat or other flowers that make black honey would not be prize honey, even with the use of the paper. But the paraffine paper will prevent propolis, to a great extent, in the entire super, as it retains the heat; and it is a well-known fact that, the more heat there is in the super—natural heat—the less propolis. A proof of that fact is, as the season advances, and the weather gets cooler, the more they use.

The object of the paper is to retain the heat; and to fit snug on the sections I fit the paraffine paper and thin boards on the supers in the honey-house, and then take them out to the yard, and I have none of that fuss that Mr. Thompson speaks of. I would use it, even if I had to throw it away after once using it. The cost is small compared with the amount of labor saved in scraping sections. If Mr. Thompson has his bees in a good location, and will use the one-bee-way Danzenbaker section and cleated separator with the paraffine he will have no trouble in getting prize honey.

S. D. MATHEWS.

Hamilton, N. C., Nov. 17.

[If it is certainly true that there is less propolis when there is an air-tight sealing over the sections, then we must give more attention to that point. Who will corroborate or say it is not true? Let's have a lot of responses to this point.—ED.]

THAT HOOK ON THE SMOKER; A POSSIBLE IMPROVEMENT.

Say, Mr. Editor, that hook idea of W. L. Coggshall's, figured on page 779 is good; but just put the hook on the front of the barrel, as we have used it for the last ten years, and see how handy it is to hang on the side of the hive so that smoke can blow across the frames, and keep bees quiet while manipulating. If put on the back of the bellows, as figured, it is necessary to turn the smoker around to have it in the right position for use. Doubtless you recollect occasions when having the smoker just ready to grab with one hand was a great satisfaction. We have used the hook this way on the old B. & H. smoker, and also on the new Crane. In the latter case it is simply a stout piece of hoop iron riveted on the barrel above the guard.

TWO CALIFORNIA CRANKS.

Los Angeles, Cal., Nov. 22.

[I don't know but you are right. I'll try one that way to see how it works and looks. Yes, there are times when one wants a smoker and "wants it awful bad;" and I have seen times when a second of time in grabbing a smoker would save a dozen stings. To be obliged to fumble after it, not knowing exactly where it is when it is wanted for instant use, is aggravating. But say, it just occurs to me that, if hooks were put on the fire-cup itself when the smoker was hooked on, the hive would be scorched and perhaps set on fire.—ED.]

BEEES GNAWING OUT BOTTOM STARTERS.

I see in *American Bee Journal*, page 726, an item in regard to furnishing beeswax to bees, with remarks by Dr. Miller and the editor of GLEANINGS pro and con. I used foundation in the honey-boxes this year, putting in nearly full sheets with bottom starters. The bees worked all right during the heavy honey-flow, and filled the boxes from top to bottom, doing very nice work indeed. But in the late harvest the bees took out the bottom starters or strips of foundation and stopped the combs where the top sheets of foundation ended. I suppose, as Dr. Miller says, they put the wax in the propolis, but I am not old enough in the bee business yet to say where the wax went to. WM. H. EAGERTY.

Cuba, Kansas, Nov. 27.

[Putting "wax into propolis"—I don't understand you. I hardly think they would convert one into the other.—ED.]

A SPRAINED ANKLE; THOSE PLAIN SECTIONS.

GLEANINGS for Nov. 15 tells us of your passing here on that spurt just before coasting into Syracuse. Isn't it fun? I want to tell you some of my experience with a wheel, that

you may escape such an experience. I started to visit my apiary, 7 miles away. In dismounting in a spot too rough to ride I stepped on the edge of a rut and thought I had sprained my ankle. Now, here is something to tell your friends. In dismounting, never step off backward, as you can't see where your foot will alight; but let the wheel tip over after slowing up, when you can see where you are stepping. After doctoring a sprained ankle for four months I found I hadn't sprained my ankle, but had injured my foot. Now, after having my foot in plaster of Paris for two months, the doctor told me to-day to begin walking. The result is, instead of the nice start in bees I thought I should have, the bees are gone and I shall be in debt when I get so I can work again. I have had a long six months of it. I saw in a back number of GLEANINGS that Mr. Calvert had some of this kind of fun. Three years ago to-day I cut my other ankle with an ax while cutting limbs away from hives.

I am glad to see you using the section without a margin, as some here call them. Doubtless they are the coming section. I don't see how you are going to make them, but some around here made with one piece an exact duplicate of the other three, with a peculiar dovetail. Your italics at the bottom of page 817, first column, are right to the point.

IRVING KINYON.

Camillus, N. Y., Nov. 26.

[There is no difficulty whatever making one-piece plain sections.—ED.]

A REPORT ENCOURAGING FROM THE GREAT NORTHWEST.

I have just returned from a long excursion to Eastern Oregon, Washington, and Idaho, with other merchants from Portland, who were out making the acquaintance of numerous customers, many of whom they had never seen. I had been over the country before, and so knew something of the extent and variety of resources; but to many of our merchants it was a revelation. It is indeed an "inland empire," and in all our traveling of 1700 miles we did not see a discontented or dissatisfied merchant. The crops were simply immense. The prices were good. The farmers have paid up old indebtedness, and have money to lend.

BUELL LAMBERSON.

Portland, Or., Nov. 23.

FOUNDATION FOR SHALLOW BROOD-CHAMBERS.

If two Dovetailed eight-frame hive-supers, each containing eight shallow well-wired brood-frames, were used for a brood-nest, could not extra thin surplus foundation be used in these frames in full sheets, and secure straight brood-combs comparatively free from drone-cells? If not, what is the lightest foundation that could be used with success?

Browning, Ill., Nov. 17. G. A. DYER.

[Extra thin would be a little too light; but what is styled thin super might answer very nicely.—ED.]

A SPECIAL SCRAPER FOR SECTIONS.

I think scraping sections with a common knife is hard and dangerous (for the honey), especially in the fall, when they put so much propolis on. I inclose a scraper which I made,



which is quicker, and with it you can't jab the honey. You can see how it works. It scrapes the edge and top of the section at once.

JNO. N. PROTHERO.

Du Bois, Pa., Sept. 18.

[If we adopt the new (old) plain sections with no bee-ways, a common case-knife will be the best scraper after all. For the old-style section I have no doubt that your scraper is better.—ED.]

HOW TO WINTER BEES IN A WARM ROOM; PARTRIDGE-HUNTING.

I have learned something about wintering bees that is new to me. I have taken GLEANINGS for 20 years, and have not seen my way mentioned. I have been testing the method for three winters, with good results; now for the way.

I put them in a wire cage 30 in. long, as wide as the hive, and as high; that leaves a playground in front of entrance. Then I set them on a tight floor, so there is no possible chance for them to get out; then put them in a warm room and give them water. I have a house made on purpose, and have a stove in it. I burn wood, and keep the temperature from 45 to 90. You will think, when I say 90, that they would die. Try one and see. Do not keep them that warm all the time. When I build a good fire the temperature goes up that high quite often. The reason they die in a room like a living-room is because of a want of water. I keep mine in darkness till the 10th of February; then give them all the light I can, so they start raising young bees; then there is no spring dwindling.

I should like to have you come and hunt partridges about a week. It will cost you nothing for bed and board. You would need a trained dog if you wanted to kill many. I see as many as 40 some days when I am going round my bear-pens. There are some bears and a few deer left here yet. I am 63 years old. I have killed 59 bears and 81 deer. If you would come for a hunt you could go with me to the traps, three miles out. If we failed to get a bear we could get some birds. I have found lots of bee-trees—some good ones and some poor ones. I found one this fall in Potter Co. in a basswood. The hollow was 12 in. at top and 14 in. at the bottom, or an average of 13 in., filled 11 feet—more comb honey than a barrel would hold. If you could see the chance they had you would not think they had done any thing extra.

ISAAC WYKOFF.

Cameron, Pa., Nov. 12.

[Your plan may work very successfully, but if carried out on a large scale it might be

pretty expensive. But it is interesting to know that bees may be wintered in a warm room, under certain conditions; and one of those conditions seems to be plenty of water.

But, say, I should like to go on a hunt with you; but work, I fear, will hold me down too close for such a luxury.—ED.]

THE PLAIN SECTION AND FENCE; QUESTIONS CONCERNING IT.

Mr. Root.—On page 741 you speak of the comparatively no-bee-space section and cleated separator. You have no idea how you interested me, as I have had more or less thoughts relative to cleated separators with bee-space openings ever since I read with so much interest what the late B. Taylor said in March 15th GLEANINGS, 1895. And now the comparatively no-bee-space section filled out within $\frac{1}{8}$ inch of the edge has more than doubled the interest in the cleated separator. I do not know how I could succeed with them, but it seems to me it would be grand.

In order to have the same capacity as the $1\frac{1}{8}$ scored section, would not $1\frac{3}{8}$, instead of $1\frac{1}{2}$, be the proper size, as each separator cleat reduces the width of the section $\frac{1}{8}$ inch?

While I suppose the cleated separator and narrower section would work on the $1\frac{1}{8}$ -inch section-holder, yet I think it would be much better to have the cleats go down between the section-holder, and rest at the ends on the tin bearing. If the section is narrower than the section-holder the bees will fill in propolis along the edge of the section—at least I think they would, as I have used straight slats for section-holder bottoms as wide as the narrow part of bottom of section, and on the edge of the wider part of section would be found propolis, gluing the section to the section-holder.

I did not receive the samples of drawn comb in time to give it a trial, but can see that it is a production of great mechanical skill. I think a $\frac{1}{8}$ or $\frac{3}{16}$ raised cell wall would be sufficient, and easier made and handled. I am glad to learn that it can be made with natural-cell bottom instead of flat bottoms.

Did your staple for end bee-space at end of brood frames give good satisfaction the past season? That seems to be of interest to me.

It occurs to me that the one who boils down "beedom" for the *American Bee Journal* must stand by nearly all the time and stir, as it seems to be boiled down pretty thick, and yet not scorched.

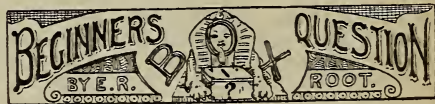
J. W. SOUTHWOOD.
Monument City, Ind.

[The cleats on the fences we are making are just exactly $\frac{1}{2}$ of an inch thick. Assuming that the bee-space is $\frac{1}{4}$ inch ($\frac{3}{16}$) there will be one-third of the bee-space in the section; that is to say, the comb surface on the average will be $\frac{1}{12}$ inch from a straight-edge lying across the edges of the plain section. If we made the cleats only $\frac{1}{8}$ inch thick on the fences then the sections would have to be $1\frac{3}{8}$ inches wide.

The fences will be made to go *between* the section-holders, and this will, of course, require that they (the section-holders) shall be the same width as the sections; viz., $1\frac{1}{2}$ in.

When the fences are designed for the old-style section-holders they will be made to go *inside* of the holders, not between.

Yes, that staple for end-spacer gave excellent satisfaction, and we shall use it for 1898.—ED.]



N. A. W., Wash.—We can give you no definite information as to whether locust honey candies quickly or not, as that which we have produced was sold almost as soon as it was capped over in the combs. The honey is not equal to clover, mountain sage, or alfalfa, in point of flavor; and in color it is a little darker than clover or basswood. We do not see any reason why you can not buy this as well as any honey, by sample. We have special mailing-vials for small samples of extracted honey. There is no reason in the world why you can not get a small sample by mail.

J. J. V., Mo.—1. The shallow extracting-frames, $5\frac{3}{8}$ in., are a little handier to uncapp than the whole-depth Langstroth frames. Where the seasons are short, or the honey comes in slowly, as it does in the majority of localities, a shallow extracting-super is preferable to one full depth. The latter is apt to discourage the bees, as it gives them too much room at a time to keep warm at the start.

2. A wood-bound honey-board provides the necessary bee-space above the brood-frames and between the super above. It is also at the same time stiffer and much more satisfactory in every way than the unbound zinc.

3. The ten-frame hive is not necessarily better than the eight-frame. It all depends upon the locality and general circumstances. Where one desires to run entirely for extracted honey, and the seasons are long, then the ten and twelve frame hives seem to be better; but in the North, where the seasons are short, and the honey-flow moderate, the eight will give as good or better results.

4. Comb foundation not used in the summer should be kept over winter in a room that will not go below a freezing temperature; and when it has been subjected to a freeze it should not be handled while in that condition. While freezing may not do it any harm, it certainly does not do it any good.

5. The bees should have only as many frames as they can cover comfortably just before cold weather sets in. The average colony of eight-frame capacity will take about six frames for winter; of ten-frame capacity, seven and eight frames.

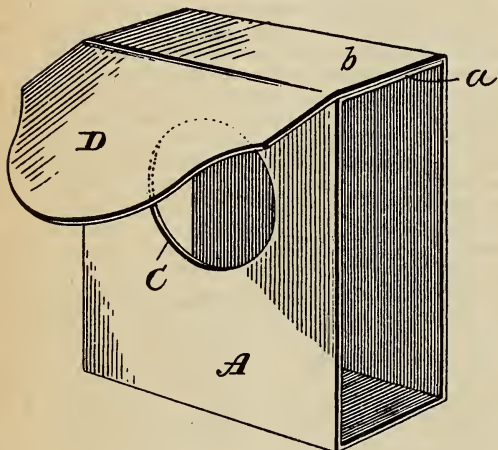
6. An ordinary Langstroth frame may hold anywhere from 6 to 8 pounds.

For further particulars in regard to these and other matters see our A B C of Bee Culture, and our catalog which we are mailing you, especially the last few pages. Prospectus of the A B C book is given on page 31.



THE DANZENBAKER SECTION-CARTON.

Mr. Danzenbaker has been turning his attention of late toward a cheaper carton than has hitherto been sold on the market. The one that he has devised is shown in the accompanying sketch. It perfectly protects the two faces of honey, and the top and bot-



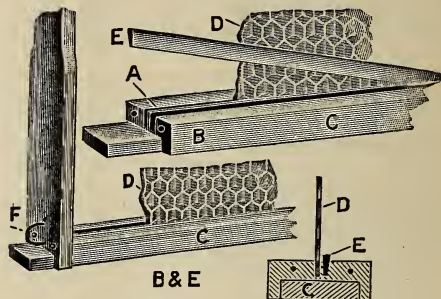
tom, but does not cover the ends of the sections. The section is slipped into the carton endwise; the flap D is folded over the opening, and that gives a view of the honey. Then a rubber band is slipped around the package. For the purpose of showing the honey the flap D may be lifted up, and the honey is shown from the opening as at C.

Just how far this carton may prove to be cheaper than the regular styles on the market I can not say; neither do I know whether the opening at C, with the cover-flap D, will prove to be of special merit. All these things will have to be laid before the unprejudiced bar of the consumer.

FASTENING FOUNDATION IN TOP BARS; THE SLOTS AND WEDGE METHOD.

For a number of years we have made our thick top-bars with a molded bead, the same as is illustrated on page 817. This molded edge forms an excellent comb-guide to the bees when no foundation is used, as well as an edge to which foundation can be fastened by means of the D. isy foundation-roller. While the majority of our customers have succeeded in fastening the sheets to this edge by the roller method, some few seem to be unable to acquire the knack; and as there has sprung up within a year or so a demand for the saw-kerf and the wedge method, we have decided to make this feature, for 1898, an option, without additional cost, on brood-frames, whether of thick-top or of the Hoffman. The method

that we have adopted we regard as an improvement over some that have been put on the market, and is no thing more nor less than an old method used by the English bee-keepers for years, and for whom we have made thousands and thousands of frames embodying the feature.

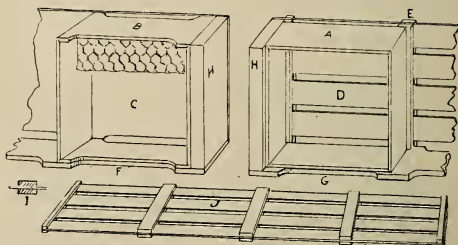


The accompanying engraving shows just the idea. There are double saw-cuts $\frac{1}{4}$ inch deep $\frac{1}{8}$ inch wide, running exactly parallel, and separated by a film of wood about $\frac{3}{8}$ inch thick. One of the saw-cuts (the one to receive the foundation) is exactly in the center of the top-bar. The method of fastening is to slip the sheet, as at D, see engraving, into the saw-cut. The long wedge-shaped strip of wood, E, is then driven down into the other saw-cut, wedging the aforesaid dividing-film of wood tightly against the foundation, thereby making it fast. The engraving will make the thing perfectly plain.

The only objection I can see to this method—and it may prove to be quite a serious one in the future—is that foundation will probably be made with deeper side-walls than at present. It may not be practicable to make the saw-cut fit the variety of thicknesses of the different foundations on the market. The saw-cuts as we make them at present are adapted to the use of sheets of ordinary medium or light brood foundation.

FENCE FOR OLD-STYLE SECTION-HOLDERS.

Some of our subscribers have not understood how the plain section and fence could be used in the old-style section holders, especially when the plain sections are $1\frac{1}{2}$ inches and the



old sections were $1\frac{1}{2}$. By consulting the accompanying drawing, I think the idea will be made plain. A E H D shows the plain section in the old section-holder. The width of the sections is exactly the width of the inset

at G. As the plain section is narrower by $\frac{1}{8}$ of an inch than the old section, there will be $\frac{3}{8}$ on each side to fill up. And this space is filled by cleats on the fence that are exactly $\frac{3}{8}$. B C H shows the old-style section-holder and separator, and a comparison of this with the other will make the idea plain. The artist has made a mistake. The cross-cleats should drop down from the top slat by $\frac{1}{4}$ inch, and the slats themselves should project beyond the end-cleats a distance equal to the thickness of the section-holder end.

NO-BEE-WAY SECTION FOR THE DANZEN-BAKER HIVE.

By the way, Mr. Danzenbaker wishes me to announce that his hives for 1898 will be fitted with no-bee-way sections. He writes me that he is glad that I have come to see the value of the double-cleat separator and the plain section, and is now mean enough to insinuate that he "told me so," but that I couldn't or wouldn't see the advantage of these things last year. However that may be, I was rather under the impression that he was a stickler for the one-bee-way section, and that last fall when I was arguing for no bee-ways he would not take them as a gift. But all is well that ends well. We are both in the same canoe, and are now looking for fair sailing.



S. A. NIVER, at the close of one of his letters, writes: 'I am about to start over my honey-route again—this time to collect bills. Selling and collecting are two entirely different matters.' Mr. Niver has given us valuable information on selling honey. Will he now also tell us something about collecting? Does he go at his "poor pays" rough shod, or does he give them honeyed words and sixty days more time? By the way, I should like to hear from others of our readers who are successful in getting their pay for every pound of honey sold. A few little hints on this subject will prove very helpful.

HONEY-LEAFLETS AGAIN; KEEP THE BALL A ROLLING.

I HAVE already spoken of the fact that we are inclosing in every one of the letters that go from our office a copy of our honey-leaflet. I have also mentioned how it got into the hands of a government official, and of the liberal extracts that were made from it in one of the great dailies of Columbus, Ohio. This morning a clipping was laid on my table, taken from the Cleveland *Leader*. It related to the value of honey as food. As I read down the column it seemed strangely familiar, and it finally flashed through my mind that it was all from our honey-leaflet. The reporter had made some variation, and had himself dwelt

upon the fact that honey is cheaper than butter, and that it never becomes rancid, etc.

How the *Leader* got hold of the matter I don't know. If we can only get into plate matter the material that Dr. Miller has so carefully prepared, and into the great dailies of the country, it will do a world of good to the industry. There is nothing in the subject-matter of the leaflet that advertises supply-dealers. It simply tells how good honey is, and, of course, will create a demand for it.

THIEVES AT OUT-APIARIES, AND HOW TO DEAL WITH THEM.

OUR out-apiary is being tampered with again by thieves. Several hives have already been looted in the last few days. When the weather is warm, and the bees are able to use their wings, the apiary is not molested; but as soon as it turns cold, and the bees are semi-dormant, then the depredations commence. We have made up our minds to stand it no longer, and have therefore posted, in several places, especially at the out-yard itself, the following:

\$100 REWARD.

The above sum will be paid for the arrest and conviction of the parties stealing our honey and otherwise tampering with the bees at our apiary a mile and a half north of the American House, on the pike. For particulars apply to

THE A. I. ROOT CO., Medina, O.

Almost before the bills were out, one man said he'd half a notion to go after that hundred dollars, and I hope he will. Even if no one secures the reward, the *effect* will be good.

When I visited Mr. Elwood, seven years ago, I saw he had notices of this character posted up in the vicinity of his yards, and I believe the moral effect of it was such that the would-be thieves let his bees and honey alone because they knew the temper of Mr. Elwood; and that, if they were once convicted, he would see that the utmost penalty of the law was imposed. In this State, at least, the penalty for stealing honey, or for tampering with hives, is very heavy; and if we succeed in apprehending the guilty parties we propose to let the law take its full course.

THE U. S. B. K. U. ANNUAL ELECTION.

The following letter has just come to hand, and will explain itself:

As the annual election of the Board of Directors is approaching, I assume that nominations are in order. It seems strange that the great State of New York is not represented in that body. I have not a list of the members, but I think I am justified in saying that New York has as many members as any other State, and a great many more than some States that are represented in the Board of Directors.

I understand the U. S. B. K. U. does not claim to be a representative body; but if you want to make it a success it will not do to ignore the greatest State in the Union. If any State should be represented by one or more in the Board of Directors, that State is New York. I nominate P. H. Elwood, of New York, for a Director of the U. S. B. K. U., and urge his election.

Chapinville, N. Y., Dec. 9.

W. F. MARKS.

It is true that York State, one of the greatest honey regions in the world, is not represented in the new Union, and it certainly ought to be. While I happen to be a member myself of the Advisory Board, I have always felt that it would be better for some one in the field to be in that position. While it is prob-

able that my name would not be again reconsidered, yet if there are any of my friends who had thought of voting for me again I would consider it a personal favor if they would turn those votes over to Mr. Elwood—a solid man in many ways—one who is engaged in bee keeping on a most extended scale, and one who appreciates most thoroughly some of the difficulties and problems that confront bee-keepers. I do not like to do electioneering or wire-pulling; but I do hope Mr. Elwood will be chairman of the Board of Directors for 1898.

Perhaps some of my friends will think I ought to go on again; but occupying the position I do on GLEANINGS, I can offer my great chunks of wisdom (?) just as well as if I were a member of the Board itself, and I can assure my friends that my interest in the Union will be just as great as though I were an active officer of the same. I feel that, with all my other duties, I have not the time to give the Union such intelligent attention as an officer should. Hip—hip—hurrah for P. H. Elwood!

A FUNNY MISHAP.

Many of our English cousins are enthusiastic bee-keepers, and they set as great value on their choice queen-bees (or even greater) as do our friends here in America. During the past season, so we are told, one bee-keeper over in England arranged to send to a brother bee-keeper a choice and valuable queen; and the agreement was, when it was ready to mail, a telegram was to give notice to the recipient that she was coming. Imagine the surprise of the telegraph operator when he received the following:

"The queen will be at your place on the 5 o'clock train. Have every thing ready for her on her arrival."

The operator, it seems, knew nothing about queen-bees, and at once jumped to the conclusion that the Queen of England, by some sudden arrangement he could not understand, was to grace their little town with her royal presence. Imagine the surprise and disgust of the good people (who gathered from every direction) when the express agent held up a wire-cloth cage containing a *queen-bee*! The account does not state where the telegraph operator was with his telegram about that time.

A. I. R.

APICULTURAL JOURNALISM.

FRIEND Hutchinson, of the *Bee-keepers' Review*, says he is proud of GLEANINGS, even if it is not his journal. Here is the generous compliment he pays us:

GLEANINGS for Nov. 15th is an unusually fine issue for even that fine journal. I have counted the engravings, and there are fifteen, while the reading is bright and sparkling, and "up to date." I am proud of GLEANINGS, even if it isn't my journal.

On another page of the same number Mr. Hutchinson gives the *Amer. Bee Journal*, another competitor of his, this *well-deserved* compliment:

An editor will notice editorial work on a journal similar to his own quicker than will any one else; and in this connection I wish to say that I believe no bee-

journal shows more careful, conscientious editorial work than does the *American Bee Journal*. By this I do not mean that it contains a large amount of editorial matter, because it does not; but there is an undefinable something about a paper that tells to the practiced eye when things have been "licked into shape," or whether they have been thrown together after the "slap-dab" style. Bro. York does not claim to have had much experience as a bee-keeper; but he is bright enough to bring to his aid those who have; and I doubt whether the *Bee Journal* was ever of much more practical value than at present. Speaking of work, I believe that Bro. York does not have a large force, yet he gets out a weekly, and I know that he must have to put in hours of work with which we monthly fellows have no acquaintance.

How different the spirit of these utterances from those displayed by the editors of some other rival journals in other pursuits! Only the other day, in reading my bicycle journals I could not help noting the way the respective editors of those periodicals slung mud at each other, and especially how they praised their own journals, and ridiculed those of their competitors. Will Bro. Hutchinson lose subscribers from his own list who will go to the *Bee Journal* or to GLEANINGS? Not at all. I am of the opinion that the average subscriber admires that kind of spirit, and he will stay by the editor every time who shows that spirit of brotherly love—"in honor preferring one another."

MISTAKEN IDENTITY AT BUFFALO; THE BORES AT CONVENTIONS.

THE following item appears in the weekly Budget, which, by the way, is always interesting, in the *American Bee Journal*:

Mr. D. W. Heise, one of the most respected and gentlemanly Canadians at the Buffalo convention, reports in the *Canadian Bee Journal* that at that meeting he was several times taken for Mr. Ernest R. Root, editor of GLEANINGS. He jocosely says that it sort of inflated him, and that he may soon start a paper, to be called *Gleanings in Canadian Bee Culture*. But we think that, with proper care and sufficient time, he will recover.

It is a good thing for one to see himself as others may see him, and I am only sorry that I do not remember to have met that "twin" brother. If I did meet him, I was not aware that he had been taken for me or I for him. The next time I meet the gentleman I hope he will introduce himself as my twin brother. I am sure friend Heise doesn't need to feel flattered because of his likeness to my poor self. Many another in my shoes would do far better than I.

By the way, this is not the only instance of mistaken identity at the Buffalo convention. Two men, of about the same size and height, who attended, looked decidedly alike; and when the two sat near each other it was almost impossible to tell which from t'other. One was a quiet, genial, pleasant man; the other was always bobbing to his feet, and making himself notoriously disagreeable—always throwing out objections, and never harmonizing with the discussion. I said to the first-mentioned person, after I had learned to distinguish one from the other, "Why, you look almost exactly like —."

"I am not flattered," said he. "I have no sympathy with his ways of doing. Such men are always a bore to a convention, and a drag to good discussion."



HOW TO GROW A CROP OF PUMPKINS; VALUABLE SUGGESTIONS IN REGARD TO PREPARING THE GROUND FOR FARM CROPS IN GENERAL.

The picture we give of forty acres of pumpkins shows such a thrifty crop that we asked for particulars in regard to growing pumpkins for a canning-factory. The reply will be

a boy the farmers used to be glad to get a cent apiece, little and big.

HOW THE "40 ACRES" WAS MANAGED.

Our land is very dry, and was not much affected by the heavy rains in August; but the drouth killed the vines four weeks ahead of time this fall, and, we believe, cut the crop 50 tons short. We harvested 554 tons from 37 acres. Thorough cultivation and plowing under green manure (rye, buckwheat, cow peas, crimson clover, etc.), we believe will bring good crops almost anywhere. We plowed under crimson clover last spring, and have another crop growing now.

We seed 20 pounds per acre, and cultivate in at last cultivation of crop, say about July 15th. Crimson clover and cow peas are our favorite manure crops. If the farmers in any county would pursue plowing under these crops for ten years we believe their county would be the banner one of the State. Every acre of cultivated crops should be sown with crimson clover.



FORTY ACRES OF PUMPKINS.

found below. For several years past, so little attention has been paid to growing pumpkins in our vicinity that the prices have ruled quite high. In fact, I have, during the past two or three months, paid 5 cts. apiece for every load that I have seen brought into our town. Where they are large and fine I have paid as much as 6, 7, and even 8 cts. each. These have all been sold for pie-making. In fact, for several years back we have been getting as much per pound for nice pumpkins as for watermelons. I suppose no great amount, of course, could be sold at these figures; but it is well for the market-gardener to grow enough to supply his customers. When I was

If it is not a complete success every season, we believe it will pay fully 100 per cent on the investment.

We used some air-slacked lime, potash, and phosphoric acid on the clover, but this did not show any marked gain over where none was used, and we are not prepared to say that the benefit equaled the cost.

We believe in subsoil plowing at least once in five years, and oftener if there is a surplus of horses that can be used without hiring extra help. We run the subsoil plow about eight or nine inches below the bottom of the furrow turned by a common plow. It does not turn up the subsoil, but it is lifted up and dropped back in a mellow condition, breaking up the hard crust on top of which the common plow has run for years. This gives a mellow soil about 16 inches deep, which, with the green manure, will hold moisture like a sponge during a drouth, and let off surplus water when there is too much. Some claim land leaches its fertility if this subsoil is broken up, but this has not been our experience. In laying sewers, etc., where

we have dug trenches three to six feet deep, we find there is nearly double the growth over these trenches compared with the growth alongside of them where the ground is mellow only as deep as plowed. Our theory is, that, where the soil is mellow, the roots will follow after the fertility to the depth of several feet. The mellow soil acts as a catcher and absorber of fertility, while with the hard subsoil there is nothing to absorb and hold either moisture or fertility; and any getting through the hard crust below the plow is lost. The fine roots of plants can not get into the hard subsoil to use what little fertility there is. With a perfectly mellow subsoil we believe it impossible for fertility to get far enough away so that a vigorous crop of any kind will not find it. In proof of our ideas of green-manuring, etc., we submit the following crop figures:

On one field of about 12 acres of our poorest land we have grown a crop of pumpkins each season for the past three years. In 1895, 93 tons; 1896, 116 tons; 1897, 151 tons. Next spring we shall subsoil this piece and expect to get still better results. Of course, we grow special crops, pumpkins, tomatoes, etc., but the same laws of fertility, deep mellow soil, thorough cultivation, etc., we believe govern the growth of all crops.

IN REGARD TO COW PEAS.

If we can keep up the fertility of our soil with crimson clover we do not expect to use any more cow peas. When obliged to lose a cultivated crop we get three crops to plow under. Cultivate or harrow in rye on old ground in the fall; plow under in the spring; sow cow peas; plow under and sow rye in the fall, which we plow under the following spring, and plant the crop we wish to grow. Poor land can not remain poor with this treatment. H. A. CUMMINS.

Conneaut, Ohio, Nov. 29.

I wish to add emphasis to the remarks in regard to subsoil plowing. Almost every season we have one or more excessive rains; and even on our ground that is thoroughly underdrained we have had troubles with wash and from the soil getting so full of water that it settled right down like mud. I remember one spring, when we had prepared the ground up around the windmill with special pains and care. It was plowed a foot deep, and then worked up until it was soft all the way down. When a heavy rain came I stood by the window watching; and for a considerable time after the other ground was full, and the water running over the top and cutting gullies, this piece on the hill seemed to be still taking in and holding the whole freshet. Just as the shower wound up, however, I saw the ground had got all it could hold, clear down as far as our plow went. The whole piece was getting to be soft mushy mud. Finally it began to break away here and there, and my rich mellow soil, manure and all, began to start down toward the lower land, washing up valuable plants in places. The rain let up, however, before very much damage was done. Now, had this piece of ground been broken up with a subsoil plow as friend Cummins has advised, I think it would have taken up and held all the water. I know a good many have reported unfavorably in regard to subsoiling; but I think it must certainly answer two purposes when properly done. First, it prevents washing or letting the loose soil settle down again hard and compact. Secondly, it helps to hold the great mass of water, that comes during these excessive freshets, at a point where the roots of the crop can go down and reach it in time of drouth. I have tried subsoiling to some extent, and I feel just now very much like trying it again, especially for a crop of pumpkins next year, and I am pretty sure I can raise them for *considerably* less than a nickel apiece.

PRODUCING JUST SO MUCH AS YOUR MARKET DEMANDS, AND NO MORE.

When I first commenced market-gardening I had some sad experiences in producing large crops of perishable goods that could not be sold when they were ready to gather. I think I started out with about an acre of early peas. We filled our town, and then tried to sell more by putting the price away down, and finally sent them in wagons to neighboring towns, but got hardly enough to pay for the time of the man and team. I know some people do well in shipping these things to distant markets by rail; but what few experiments I have made in that line have turned out so badly that I became disgusted with that business. For instance, I made one shipment of Jersey Wakefield cabbage, extra nice. When I complained because the commission man made no returns or reply whatever, he said the cabbages sold for just about enough to pay the freight, and he could not see why there was any need of making any reply under the circumstances. Well, after that year I learned to plant just about as many peas as our market would take, say at from 20 to 40 cts. a peck, and the same way with parsnips. Once or twice we had so many we could hardly sell or give them away. After that I figured out just about how many rows I should plant the length of my creek-bottom ground, so they would all be sold by the time I wanted the ground for another purpose; and for several years I have been enabled to hit it about right on all these things that we can not gather and put away until somebody wants them.

But one thing has pleased me; and that is, to note that the demand is steadily increasing. Last year I sold from 50 to 75 bushels of parsnips at about \$1.50 per bushel, retail. The parsnips were nice, and given to the people fresh, digging them only as fast as they were wanted. Well, this season, for the first time, we have had a good demand for parsnips in the fall. We have been selling about a bushel a day for perhaps the past three or four weeks. To-day, Dec. 9, the weather is very warm and nice. There is no frost in the ground, and we have been digging our carrots and bringing into the cellar a fresh supply of parsnips. We made a mistake this year in not having carrots enough. A few years ago we used to have trouble to sell all of our crop, even at the low price of 25 cts. a bushel. This fall our first customer took almost our entire lot; and, by the way, how much money do you suppose one could get out of an acre of creek-bottom land, sown to carrots, at 25 cts. a bushel?

Shall I tell you how I harvest them? Well, we first plow a deep furrow as close to the roots as we can without cutting them. Now, if you manage just right, the next furrow will throw the carrots all out of the ground. Teach the boys to go right along walking in the furrow, and twist the tops off, leaving the tops down in the dirt. If you do not go with them they will pull the carrots out of the ground, tops and all, and then fuss to twist the top off, throwing it one way and the carrot another, whereas you will get along twice as fast if you leave the top right down in the

ground where it has been turned under by the plow. Just twist off the root and toss it into the basket. When the soil is just right, carrots can be grown so thickly that they almost crowd each other out of the ground. Horses, cattle, and almost all stock, are not only very fond of them, but a moderate use of carrots along with the grain is beneficial, both to horses and cattle.

APPLES.

The Department of Agriculture has just issued a catalog of fruits recommended for the United States. It is entitled Bulletin No. 6. About four pages are devoted to apples. On these four pages 259 kinds are described, besides 17 kinds of crabs. By a very ingenious table they give size, form, color, flavor, quality, season, use, and tell where the variety originated, as nearly as possible. The size is from 1 to 10; quality 1 to 10, 10 being the largest and 10 the best. I looked over it with very much interest to see how their rating would agree with my own. They rate the Baldwin in size as 7 to 8; quality 5 to 6. In our locality we should have put the quality a little higher. But perhaps we are not acquainted with all the new kinds. Belmont is put 9 in quality—next to the head. This would agree with me exactly; and Ben Davis—now, reader, where would you have put *Ben Davis*? They have it 4. I think I should have put it a little higher; but people generally here in the North would agree, perhaps, with them. Benoni is 7. I tried to think of the poorest apple I knew, and turned to Fallawater. They have it 10 in *size* but 4 in *quality*. When apples are scarce, and people can not get any other, or they are not acquainted with the Fallawater, they buy it very well. One great objection is, it is not good to cook. Fall Jettening is put 3 to 4; and I think that is about as low as they mark any thing in quality. Fall Pippin is 10 in size and 10 in quality. Whenever I think of the big apple-tree that Mrs. Root's father used to have right near the house, I make up my mind that 10 is about right, both for size and quality. Now, were I sure that Mrs. Root would never see this I think I would say I used to think farmer's daughter was 10 also (the very highest mark, you know). The Russian Gravenstein is marked 8 in size and 9 in quality. The Lady apple is 1 to 2 in size, 6 to 7 in quality. Maiden's Blush is 5 to 6 in size, 4 to 6 in quality. I should have put the quality a little higher. Newtown Spitzenburg is 10 in quality, so is Summer Pearmain; Winesap is 6 to 7. Yellow Newtown, or rather, Albemarle Pippin, is marked 10.

I presume this bulletin will be mailed to any one free on application. It is put out by the American Pomological Society, and is revised by T. T. Lyon. I rejoice to see such a bulletin, because it is *authority* on matters that have been so mixed up. By its aid, almost any apple-grower can decide whether he has got the names of his apples correct or not. Judges at fairs can also decide pretty correctly as to whether the apples on exhibition are correctly named. As the bulletin discusses in

the same way almost every other fruit we grow, north or south, it will certainly prove to be of great value. Yesterday a carload of apples came to Medina. The price was about \$3.00 per barrel, wholesale. I told the owner I would take ten barrels if he could furnish them all different. I think they came from Missouri. There are several new kinds I did not find in the list mentioned, and among them are some equal to any I ever saw or tasted. I would especially mention the Wabash Sweet and Stark.

OUR HOMES.

Abstain from all appearance of evil.—I. THESS. 5:22.

The text above was brought to mind just a few minutes ago. A letter was handed to me from a good friend whose feelings had been very much wounded, and he was greatly stirred up by the way we had treated him. For a time nobody could imagine what it was that made him feel so hurt. He alluded to a letter written to him on the 18th of November; but the clerks all stoutly declared that no one had written to him a word at that time. After a good deal of time spent in investigation I found a *printed* letter had been sent him from the subscription department. He had had hard times, and was in arrears; but, notwithstanding, he had been sending us a dollar about once a year pretty regularly of late. This money had been carried to the ledger, and credited on his *old* account; and in this way his subscription account showed that he was in arrears two or three years. I found, in the middle of the printed letter, this:

Up to date we have heard nothing from you in regard to the letter we sent you in reference to your subscription, and have therefore dropped your name from our subscription list, leaving amount due us on arrears as per statement below.

Now, the statement in the printed letter was not true, for he sent us a dollar a year ago, and another dollar recently, and he, not *noticing* that the letter was a printed one, and not written on a typewriter, thought we were ignoring the amounts he had been sending us. I hardly need tell you that, since typewriters have come in vogue, it has become quite customary for business men to have letters printed so as to look so much like a letter written on a typewriter that people are deceived. They think a business firm has taken the trouble to write them a personal letter, when it is only a printed one, such as is sent out to thousands. The reason for this is that most people will pay more attention to a personal letter than to a printed circular.

But I protest against this whole business, and have been protesting for years past. I have refused to subscribe to mission work, and have thrown the letters into the wastebasket, because it was very skillfully managed for the express purpose of deceiving or deluding the person who received it.

May I take the liberty of changing just a little the beautiful text at the head of this? I would say, "Abstain from all appearance of

deception." It is frequently urged that some kinds of deception are harmless and innocent. We are told that there is "not one person in ten but knows at a glance that it is a printed letter." If that is so, then why take so much trouble? I do not believe it is best or wise to deceive even a child—not even the baby; and it surely is not right to deceive elderly people who may be childish. Neither is it right or wise, in my opinion, to deceive the middle-aged. If you want to send a printed circular, that can be sent out by the thousands, make it plain to every one, young and old, that it is a printed circular and nothing else. I believe this course would be the most profitable in the end, in business matters; and I am sure that, in Christian work—especially in mission work—we can not be too *sincere* and *transparent* in our acts and words. It may be that the advertisers who pay so much money to our periodicals gain riches by making deception one of the fine arts; but I am sure they do not secure clear consciences and a kind of happiness that is worth more than *all the gold in Klondyke*.

Dear Mr. Root:—Won't you please send me the copy of GLEANINGS in which you told us how you returned thanks at the table? I am here visiting a beloved sister. We used to read GLEANINGS together. It was where you told almost word for word how you prayed at the table. I have read your sermons for ten years, and am back here telling my sisters about them. The girls are working to establish family altars in their own homes. I told them there was lots of help in your paper, and about that particular one in regard to returning thanks. I can not remember the date, but it was some time in the last four years. When I came to my sister's I tore out a lot of your sermons and brought them home to them, but I haven't the most desirable ones. I took the magazine just for the sermons during the last six years. I have often wondered what religious papers you people read back there that you could throw out so many good hints. Or was it God and the holy Bible and prayer alone? I don't think that was all of it. I believe you have earthly helpers besides the help our Father in heaven has given you. Am I guessing right? MRS. M. A. TRAVIS.

Robinson, Brown Co., Kan., Nov. 15.

Some of the friends may be a little surprised that I should use the above letter with the exceedingly kind and encouraging words, when it evidently was not intended for print. Another thing, as a rule such words of commendation are best kept to one's self, as the writer evidently intended. But along with these kind words comes a most tender and pathetic plea for the old-time fashion of asking a blessing at the table, and having family worship in our homes. Dear friends, this is my last Home talk for the year 1897; and very likely a good many will discontinue, and to those it may be the last talk I shall ever give them. The thought has been coming to me, "What is the most important message I can send to the homes and home people who read GLEANINGS?" It would be something right in line with this letter in my opinion. Do not let the world with its cares—do not let the changed order of things induce you to forget Bible-reading and daily prayer. Do not let electric railways, electric lights, modern machinery, and modern ways of doing things crowd out the word of God; and do not, I beseech you, let *any thing* that this world may offer, crowd in so as to make your relations to

the great Father above any more distant than they have been. May it rather be, in the language of our old hymn,

"Nearer, my God, to thee."

The little prayer that I suggested for use before partaking of our daily food is found in GLEANINGS for Nov. 15, 1895, page 868. It is as follows:

"O Lord, we thank thee for this pleasant and happy home. We thank thee for these our dear children. We thank thee for health and strength, and for good appetites, and for this our daily food. May it strengthen us that we may be helpful, one to another, and that we may be self-sacrificing; that we may have grace to use our strength so that selfish feelings shall be put down, together with all that is evil; and may we uphold all that is good and noble and pure, for the sake of the dear Master, our Lord and Savior Christ Jesus. Amen.

Now, dear friends, I did not intend that that prayer should be copied or used *every day*, by any means. There is only one prayer in the world that we can use in place of something of our own wording, and that is the prayer given us by the dear Savior himself when he was here on earth. The reason why I outlined the one above was to suggest some of the things we should remember to thank God for. Every man, woman, or child who has a home ought to thank God daily for that home, humble though it may be. *Any* home is better than *no* home. Some of you may think I do not know all about what I am saying; but I think I do know pretty well all the trials and difficulties that homes present.

Again, we should thank God for our parents, children, brothers, and sisters. We should remember to thank him for good health, strength and good appetites. The advertisements in newspapers constantly remind us how few there are who enjoy really good health, and can eat with impunity what is generally set before us.

Again, we need God's grace and wisdom to make a good use of strength. We need to be saved from the sin of ingratitude, from evil thoughts, and from all suggestions of the tempter; and in our daily worship we should remember the events, the anxiety, the longings, that belong peculiarly to each day. No two days are alike. As a *rule* I would try to have no two prayers alike—not even asking a blessing at the table. This is pretty hard, I know, when we think of the number of times we are called upon to give thanks in a year. Very often when I sit down to my meals, especially after I have been delayed, and prevented from being on time, I am faint and exhausted; and sometimes it is about all I can do to call up grace enough to repeat words that I have used perhaps thousands of times before. Now, please do not misunderstand me, dear friends of the Home Papers. The prayer that is repeated until it sounds almost stereotyped is better than *no* prayer at all—a thousand times better; but if we use the same words over and over, we should have to be more than human if they did not in time get to be meaningless.

It happens to be my privilege to be one of the volunteer observers on the Weather Bureau, and I enjoy studying the weather with all its varied features every day in the year.

There is not a single day but I find something to thank God for in the weather. I do not believe, dear friends, this is extravagance. T. B. Terry once said he could always find reasons to be happy when it rained, and he could also find other reasons for being happy when it did *not* rain. That is the right spirit. Let us be so loyal to our Maker, our heavenly Father, our great, good, and wise *Friend*, that we shall never be tempted to be rebellious and cross about the things we can not help, and which are unquestionably in his domain. The courts of law, you know, specify that a man is not held responsible for certain things they term "the acts of God." Now, it seems to me it is an excellent thing to remember the weather in our daily petitions, and in giving thanks. When the community in general needs rain, let us ask God for the rain that is needed, day after day, until it comes. When it comes so as to cause disaster, as it did down in the Mississippi Valley last spring, let us unite in asking him day by day to withhold the rain till it ceases; and let us, in our daily petitions, beware of confining our thoughts to our *own* little home or neighborhood. Every family reads the papers enough nowadays to know of the suffering in different parts of the world. Let us pray for these neighbors, while we remember the great Father above always; let us also always remember the chief officers of our government. Do not forget to pray for the President of the United States, no matter what political party you or he may represent; and do not forget to be loyal afterward in your talk during the day, to be consistent with your daily prayer. Be frank and free to tell *God* all your troubles. In your closet alone, remember your children, calling them by name, and the same with your friends and neighbors; and by all means remember the editor of your favorite home paper.

And this brings me to the concluding words in the question at the end of the kind letter at the head of this talk. May I address her in my answer? Dear sister, I believe my daily Bible-reading and prayer have much to do with that portion of God's Holy Spirit which you and other friends give me the credit of having received; and I know full well that there are many praying for me that I may not make a mistake nor go amiss nor be led away by *any thing*. I have been helped by the thought that many are praying for me. I have been greatly helped, also, by such letters as the one I have given. They have been coming constantly ever since this, my lifework, was commenced.

Once more, dear sister, it has been my good fortune to have kind Christian friends and helpers here at home. The dear old mother who watched my wayward steps in infancy, and again through middle life, when I was for a time led away, is near me still, although she is now 85 years of age. Many of the helpful thoughts I have given you perhaps belong to the dear wife; and now as my sons and daughters have come to maturity it gives me more joy than I can express to see them give me helpful suggestions and encouraging words.

May God be praised for all these things I have mentioned.*

Now, please take me as I mean. I do not think I mean to boast when I suggest that, had I pushed on in the direction I started something like thirty years ago, there would have been no Bible, no prayer, no Christian home, and very likely no home at all, for me. In fact, I very much doubt whether I should be living at all to speak these helpful words had it not been for the saving power of the religion of Christ Jesus. I remember yet very well how these words will strike many of you. I know it is a little unusual to speak of sacred and holy things as I do in connection with matters of every-day life; and it is only because I am anxious for your best welfare that I do so. During the past year we have discussed the matter of medicines and physicians. We have discussed science and modern inventions; we have again and again together reached the point where man's skill and wisdom end. We have seen together, all of us (I am glad to say all of us) that there is a great universe where God reigns. He made us, he placed us here. Is it not our right and privilege as well as our duty to come to him in a loyal, honest, manly way, with all our wants and troubles as well as with all our joys?

As I grow older I believe I am changing somewhat. I used to be anxious to build up trade. Yes, I am anxious now to increase the circulation of this journal; but God knows I speak truly when I say I am *more* anxious that you should make God's holy word your guide and counsellor than that you should subscribe for GLEANINGS. I am weak and human: but God is infinite. I shall soon pass away and be forgotten; but Christ Jesus will stand forevermore. If your thoughts are on *him*, and if to him you intrust the care and keeping of your children, they will not be likely to go astray. When the writer of that letter mentioned her sisters who are working to establish family altars in their own homes, it stirred my heart more than any thing else I have seen or read for a long while. I said to myself, "May God bless the dear women! They do not know—they never *can* know—the outcome of bringing up just one little family and household in the fear of the Lord."

And let me close the talk for the year by saying this to each and all: No words can describe, no tongue can tell, the good that may come to future generations, clear down through the ages, by establishing to-day in your own home some form of family worship and daily recognition of God, the loving Father; and this, dear reader, is the message your old friend is sending to you and your home, the last one of the year 1897.

*In regard to religious helps, I read carefully and pretty thoroughly the Chicago *Advance*, *Sunday School Times*, and the *Golden Rule*. These papers are my Sunday reading. I also like to read pretty much all of the books in our Sunday-school library, so that I may know what our children are reading. On week days I read almost all of our agricultural papers, or at least glance over them. Some of these, as I have told you, are taking a strong stand for godliness and for righteousness. Let us stand by them in their efforts for the good of humanity.



ON THE WHEEL.

All through the month of November I was planning a big long wheelride; but in our locality it rained almost every day, and the days it did not rain it was muddy. But I kept up my courage, and kept telling about the wheelride I was *going* to take, every morning, at breakfast, until the children laughingly begged me not to talk about it any more, because, if I did, it would be *sure* to rain. But when the sun came out bright and clear on the morning of Dec. 10 I caught fresh enthusiasm. Of course, the roads were not very good, but there was a warm wind from the south. I took the train to a station distant about a mile from a brick pavement that runs into Cleveland. There were a good many jokes about my getting over that mile without getting the shine off my boots; but, to my agreeable surprise, I found it very nice wheeling indeed."

At one place where they were making some repairs in the road one of the men said, jokingly, "If he can get down *that* bank, he is an old hand at the business, *sure*." But I rode down it without a bit of trouble. Although there were great lumps of dirt, so that it looked as if it might bother a horse to get through, it was all the way *down hill*. By skillful guiding and twisting and pushing ahead and holding back on the pedals I got through what looked like very formidable difficulties. I kept my seat, and was over the break in a trice, and when I got on that brick pavement, with the strong wind behind me—but, didn't I just spin? This "good road" is about fourteen miles long, and the only thing that marred my pleasure was the number of teams drawing heavy loads into the city all along the road. They did not mar my pleasure very much, after all, for the kind and courteous way in which they gave me room to pass fully compensated for what little hindrance I met. Not one driver in all the fourteen miles was in the least unfriendly. Several who had loads said that, if I had rung my bell a little sooner, they would have turned out for me willingly.

There is a pleasant moral right here. People are beginning to recognize the value of wheels, and the place they are to take in the future. I did not use my bell much, because that might have seemed to many people like saying, "Get out of my way there." Instead of ringing the bell I said, after starting to ride around the team, "Will you please swing your horses over just a little?" or, "Will you please slack up just a little until I get ahead?" After I got on the bricks again I always said, "I am very much obliged to you indeed." Altogether I had a most enjoyable ride in the middle of December. I returned home on the train.

Health Notes.

CONTROLLING DISEASE BY THE FOOD WE EAT.

Before giving the following extract from the *L. A. W. Bulletin*, perhaps I should explain that correspondents in that journal give their *L. A. W. number* instead of their *name*. I have been persuaded to give this communication a place because I am sure it strikes on a great truth. Not only may rheumatism be at least largely controlled by the diet, but I am strongly impressed that there is scarcely a disease that torments humanity that does not come a good deal under the same head. It is improper food or too much food that produces disease; and the only rational cure is to go back to where the mischief started. You will notice that our friend indorses the meat diet (the Salisbury lean-meat treatment) by saying he eats all the meat he wants, at least once a day.

The letter from No. 130,538, on reduction of weight by riding, is very interesting, and no doubt the drinking of large quantities of water under the condition of profuse perspiration will, if the water be pure, act to reduce the tendency to rheumatism. He admits, however, that his rheumatism is again returning. It is strange, but too true, that in this age of progress and advanced civilization, the simple facts concerning that most painful and prevalent malady, rheumatism, are not better understood.

Whether it is that doctors do not care to consider preventive means, or that people are not willing to deny themselves anything at all, certain it is that rheumatism can be almost entirely controlled by a proper selection of food. This may come under the head of diet, but is not synonymous with starvation, as commonly assumed. Perfect digestion and assimilation of the food eaten means health, strength, and vitality; but how many of us possess it? I know hundreds who are suffering from stomach troubles, but only one man who realizes the fact. They invariably ascribe it to other causes—usually overwork. It is overwork, but not of the mental faculties, as they prefer to think. If No. 130,538 would try abstaining from sugar, grease, and starchy food—particularly fried potatoes—pastry, and fried cakes with syrup, he will find his weight decrease, and all his faculties improve in a very short time. I suffered for years for want of this knowledge, but finally obtained it upon the highest medical authority, and now enjoy better health than I ever remember, and I should like to see others equally benefited. I eat meat once a day, and all I want of it. The other two meals consist principally of corn or graham bread, and fruit stewed without sugar, or fresh fruit, than which there is no better food. The alkaloids contained in coffee upset the stomach, but that is nothing to the stomach troubles caused by the medicines commonly used for the so-called cure for rheumatism, all of which can be avoided by not eating or drinking the stuff which is the cause of the trouble.

DOSING YOURSELF WITH DRUGS WITHOUT THE ADVICE OF A PHYSICIAN.

As an illustration of the danger of this work, the following incident has just come under my notice. A person was feeling poorly; and after trying several remedies, and being "nothing better, but rather grew worse," as Mark puts it, in regard to a certain woman, he consulted an able physician. I happened to be present. After looking him over a little the doctor said:

"Have you been taking quinine to-day?"

"Yes, sir."

"How much, and how long ago?"

"I took four grains about half an hour ago."

"Is that all you have taken to-day?"

"No, I took four grains two hours before the last dose."

"My dear sir, your pulse is up to 120, while 72 is what it should be. Quinine is the very thing you ought not to touch. At the rate your heart is pounding away just now it will pound you to pieces soon. Your short, quick breath should have admonished you not to touch stimulants."

Now, this is not an unusual occurrence by any means. We have all had experience in seeing people tinker with machinery or complicated apparatus (when they knew *nothing* about the thing), in the vain hope that they might by some blunder hit the right "cog-wheel." If a machine is spoiled through mistaken kindness it is of comparatively small account; but if you think I am *wrong* when I tell you to let drugs and medicines alone, ask your family physician, in whom you have confidence, what *he* thinks about it. If somebody offers you medicine, "free of charge," do not touch it. Remember the man I told you of who planted tomato-seed because he got it free from the Seed Department. He could have purchased seed that he knew was all right, and just what he wanted, for *five cents*; but he planted the other kind in a hot-bed, got them out in his garden before anybody else, then harvested a great crop of crooked, scraggly, late tomatoes that nobody would take as a gift. Now, the medicine you are offered free of charge may be even a worse speculation. These medicines given free usually contain morphine, cocaine, chloral, or some similar drug. Of course, the patient "feels better," and wants some more medicine. But it costs \$2.00 a bottle, or three bottles for \$5.00. May the Lord be praised, a law has just been passed making it an offense either to sell or give away medicines containing these terrible poisons. The druggists and patent-medicine men are beginning to writhe and squirm already, because it threatens to kill their business—at least a good share of it. Why in the world this new law does not include cigarettes, I am unable to say; but I am on the "war-path" in regard to the matter.

LIGHT FOR DARK PLACES.

I tried to tell you in our last issue my convictions in regard to what was coming in the way of electric lighting. Below is something I found on a scrap of paper:

Electric-light meters, with penny-in-the-slot attachments, promise to become popular in some places. A London company supplies current for an eight-candle-power incandescent light six hours for a penny dropped into the box, and allows the customer to take his six hours' light at once or in small daily installments, as he chooses to turn his switch.

There, friends, do you see it? By the aid of a storage-battery, with electric light attached, an apparatus can be left in every home, so that people of moderate means may have the benefits of this beautiful light by simply dropping a penny or a nickel into the slot. No expensive man will be needed to keep the books, and there can be no complaints about unfair dealing. You put your coin into the machine,

and you get your number of hours of light, to be used as you want it, by pressing a button. When the storage battery is exhausted, somebody comes right to your door and replaces it with a fresh machine. I think the price can be made so low that almost every home may be thus supplied. Of course, the dynamo to charge the batteries must be somewhere near, and my belief is that the wind that blows so much of the time over our heads (and against them), especially at the season of the year when we have short days and *long nights*, will do this storing of electricity. All that is needed is an inventive genius to make the thing practicable.

THE NEW ACETYLENE LIGHT.

There have been so many inquiries in regard to this that I have decided to give in full the following letter from friend Long, to whom I have referred before—see page 718.

Dear Friend:—I notice in GLEANINGS for Nov. 15th several articles on acetylene gas, which may be confusing to the average reader. The article referred to in the *Cosmopolitan* is somewhat misleading, if not carefully studied, as, in practice, acetylene is used in a pure state, unmixed with air, and with less than three ounces of pressure, under which conditions it is absolutely non-explosive.

The dangerous qualities of acetylene as now used have been much exaggerated. In many respects it is much safer than kerosene, city gas, or electricity. City gas is nearly as explosive as acetylene; still, with the great amount continually used, but few casualties occur, while acetylene has these important advantages—that but one-tenth or less in a bulk is used for the same light, and the strong odor of the unburned gas will always cause its presence to be known long before enough could escape to be ignitable, which fact Prof. Jacobus seems to have overlooked.

Kerosene is more dangerous than acetylene, but we have all become so accustomed to the use of kerosene that its dangerous properties are not thought of.

With properly constructed generators, acetylene is doubtless the safest illuminant we have; and the principal reason why it is thought by some to be dangerous is mentioned by Prof. Jakobus, of its having been first used in a liquid form under a pressure frequently as high as 1000 pounds to the square inch, in which form it is liable to cause mishaps.

We have been using it constantly for over a year, and feel much safer with it than in using kerosene-lamps, as, with our generator, the acetylene is in a pure state, unmixed with air, and it is impossible to have more than three ounces of pressure to the square inch, under which conditions I think even Prof. Jacobus would admit its superior safety.

There is a plain discrepancy between Prof. Jacobus' figures as given in the *Cosmopolitan*; but, even by taking his figures, acetylene at \$97.50 per ton for carbide would be as cheap as gas with ordinary burners in New York city; less than one-third of the cost of electricity in New York, and much less than half the cost of gas in many places.

According to careful tests by expert chemists, carbide at \$80.00 per ton costs about the same as kerosene at 8 cts. per gallon or city gas at 45 cts. per 1000 feet, for the same amount of light.

As our generator requires absolutely no attention whatever for a number of weeks or even months after refilling, we can imagine nothing safer, more convenient, or cheaper than acetylene, especially for country homes; and when the quality of the light is considered in connection with its general superiority it certainly seems destined to supplant shortly other means of lighting, not only for domestic use but also for nearly every other purpose. At the present time it is being used in many homes, with the greatest of satisfaction.

Could you give me the names and dates of the periodicals to which you refer as showing acetylene to be unfitted for domestic use? I wish to keep thoroughly informed along this line. I hope to send you a portable lamp which seems to be doing nicely, in a few days. An authority I have before me states that the number of candle-power hours for \$1.00 would be—in

candescent electric light, 1600; illuminating gas, 2560; acetylene, 6700. D. N. LONG.

La Salle, N. Y., Dec. 3.

Perhaps I should inform our readers that Mr. Long is an enthusiast on this new discovery, and he may, as would be very natural, overestimate in some of his statements. I believe him to be a good and reliable man. But our readers will have to take their chances if they invest in the new light, as you see I have not yet had an opportunity for testing the lamps. I notice this, however—acetylene seems to be taking the lead in furnishing a lamp for bicycles. My impression is, it gives a stronger light than even electricity, for lamps for this purpose; but it must be lighted with a match. In view of the disastrous fires we are having all the while, I object to matches and fire in any form where they can be avoided. With the electric lamps, we have only to press the button to make it go. It can not set fire to any thing. Yes, I object to matches and fire, even when they are used to light a pipe or cigar. But may be I am peculiar.

THE "MISSING-LETTER" FAKE.

On page 826 we put in a protest in regard to this sort of thing. It is the advertisement that you see in the papers, where a prize is offered to any one who will supply the missing letters to make out a word. The puzzle is so easy and simple that a person not really smart would guess it all at once. The swindle is in persuading ignorant people that they are *unusually smart*. When they send in their answer a reply is made that they have drawn a prize of a fifty-dollar watch and chain. But in order to get this prize they must send \$5.00 for a five-years' subscription to some journal, etc. I need not detail the rest of the ingenious evasions and subterfuges to rob credulous people of their money. In one of the dailies I notice the following:

The postal authorities have decided that all the "missing-letter" contests, where prizes are offered, are lotteries, and newspapers containing such advertisements must be excluded from the mails.

One wonderful thing in regard to this whole disgraceful scheme is that it has been pushed largely by religious periodicals. May God help us to better defend the sacred name of Christ Jesus—the name the religious press should especially hold up and protect.



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We have had for a number of years a Covel automatic saw-gummer for sharpening small circular saws, both rip and cut-off. Having recently put in a larger band resaw we also purchased a combined automatic gummer, which will take both band and circular saws. This renders the first gummer of no use to us. We paid \$150 for it new, and will sell it now for \$80, crated, and free on board cars here. Shall be pleased to give further particulars to any one interested.

HONEY MARKET.

We have on hand all grades of comb honey at prices mentioned in Dec. 1st GLEANINGS. We can make a special low price on several hundred pounds of No. 1 white, in 24-lb. cases, to any one who can use somewhat irregular combs. These are not bad, but hardly what we like to send out as regular A No. 1. If interested, write us in regard to the lot. Our A No. 1 and fancy amber grades are especially desirable. These are not dark, but are nearly equal to white honey, and the finish and style of putting up is the very best.

The price of extracted remains unchanged. We are still open for offers on choice clover extracted honey; have secured some, but want to get track of more in 60-lb. cans, if to be had in that shape, at a price which we can pay.

FENCES, OR CLEATED SEPARATORS.

We are receiving a great many inquiries, orders for samples, and some good-sized orders for the new fences. We are having some new illustrations made showing the different ways of using these fences, which we hoped to print in this issue; but our engavers were so crowded we could not get them in time. We will show them in the Jan. 1st issue. From many of the letters and orders received, it is evident that the use of these fences is not well understood, or more care would be taken to state just how you expect to use them. We gave a warning in regard to this a month ago; but as the special notice containing this warning was over among the advertising pages, many did not see it. Even Dr. Miller, the "Straw" man, overlooked it. We would advise you to look it up and read it. The regular fence to be used with plain section-holders and $\frac{4}{8}$ -inch sections is $17\frac{1}{2}$ inches long, and has end standards $4\frac{1}{2}$ inches long, $\frac{5}{8}$ inch thick, and $\frac{1}{2}$ inch wide, and will be known as the H fence. Price \$1.00 per 100; \$9.00 per 1000. The same fence, with end standard $4\frac{1}{2}$ inch long and $\frac{3}{4}$ inch wide, making it $17\frac{1}{2}$ inches long, is used with $\frac{4}{8}$ sections on T tins as we now make them, with $\frac{1}{2}$ inch upright. To use with old T tins as formerly made, they will need to be grooved across the bottom edge $\frac{1}{2}$ inch deep to let them down to place over the T tin. These fences without the cross-grooves will be known as K fences, and the price will be the same as H fences. To use in connection with the old-style slotted section-holder with the plain sections requires a fence with the slats projecting beyond the end standards. The end standards, like the intermediate ones, are, on this style fence, in two parts attached to the slats, and are $\frac{1}{2}$ inch wide by $\frac{4}{8}$ inches long, projecting below $\frac{1}{4}$ inch, and even on top. The full length of this fence is 18 inches; but the distance between the outside edges of end standards on the two opposite ends is just 17 inches, so that these standards come inside of the section-holder ends against the edge of the plain section. The fence is supported by the end standards resting on the section-holder bottom just inside the section-holder end, and the slats projecting beyond the end standards come between the section-holder ends. See illustration in Trade Notes, this issue, which is not correct, because it does not show the slats projecting beyond the end standards. This fence will be called the J fence, and will be sold at \$1.20 per 100; \$10.00 per 1000.

Here, then, are three fences, all different, and yet all for use with the $\frac{4}{8}$ -inch plain section. There are other kinds of supers and fixtures for the $\frac{4}{8}$ -inch sections, which will require fences still different from those described. If you have taken in all the foregoing you begin to perceive the necessity of being very particular to designate just how your fences are to be used, when you order, if you would be sure to get

what you want. Now, you can cut a K fence from an H fence, but neither will make a J fence; and you can not easily make either out of a J fence. We have just received an order for 2000 plain sections and 300 fences "to fit the ordinary Dov. super which section-holders have been used in." As no plain section-holders are ordered, it is not quite clear whether the party intends to make these or to use the old slotted ones; and you see it makes a big difference when we fill the order. I mention this case only because here is where the greatest difficulty is going to be, and where the greatest care will be needed in making your orders.

There are other fences which we will regularly furnish. For instance, the I fence for the Ideal super, with the $3\frac{1}{2} \times 5 \times 1\frac{1}{2}$ plain sections. This arrangement will be more fully described and illustrated in next issue. This fence is $18\frac{1}{2}$ inches long, with end standards $5\frac{1}{2}$ inches long, and $\frac{3}{4}$ inch wide. Seven of these, with six straight slats, $3 \times 1\frac{1}{2} \times 18\frac{1}{2}$, and 30 sections of above size just fit into a deep super, 8-frame size, and the sections hold just a pound of honey. Notice that you get 30 instead of 24 into an 8-frame super. The fence for the Ideal super will be the I fence, and the price will be \$1.25 per 100; \$11.00 per 1000. Then there are the fences, both single and double cleated, for the Danzy hive, with 4×5 sections, at \$1.50 per 100, \$13.00 per 1000. Another point of importance to make a note of is that, in each super, we use one more fence than we do section-holder or rows of sections. That is, the fence acts as a follower, and one is used on each side of the super. This serves a double purpose. It avoids putting cleats on the super as well as secures the advantage of the Pettit perforated and cleated follower which has been strongly recommended to secure as well-filled sections on the outside as in the center. It also does away with the follower-board. In the plain no-bee-way section, the standard width for $\frac{4}{8}$ square and the $3\frac{1}{2} \times 5$ will be $1\frac{1}{2}$ inches. This width, with the fences having cleats $\frac{1}{4}$ inch thick, will hold the same amount of honey as the regular $1\frac{1}{2}$. If, therefore, you do not specify the width we will send $1\frac{1}{2}$ inch. The width to correspond with the regular $1\frac{1}{2}$ or 7-to-foot will be $1\frac{1}{2}$ plain. In figuring out what width of plain section you wish to order to use in connection with the fences, and to hold the same amount of honey as the regular slotted section, you have simply to deduct from the width of the regular slotted section the thickness of two cleats, which is $\frac{5}{8}$ exact, or $\frac{1}{8}$ full. The whole fence is $\frac{5}{8}$ inch thick, or $\frac{1}{8}$ scant.

We have just printed on our new press 120,000 seed catalogs for A. T. Cook, Hyde Park, N. Y. We notice on the first page, which, by the way, is very handsomely gotten up, the following:

"I have been for twenty years in the seed business, and I do not know that I have a single dissatisfied customer."

Now, then, friends, if friend Cook has made a mistake in the above, you can call him to account.

CONVENTION NOTICE.

The annual meeting of the California State Beekeepers' Association will be held at Los Angeles, on Monday, Jan. 10, 1898, commencing at 2 p.m.

The California Beekeepers' Exchange will meet in annual session at Los Angeles, on Tuesday, Jan. 11, at 2 p.m. A full attendance of members is desired. Mr. Thos. Wm. Cowan, editor of the *British Bee Journal*, will be present. The attendance of Thomas G. Newman is also promised. A. J. Cook, Pres.

J. H. MARTIN, Sec.

COLORADO APIARISTS, TAKE NOTICE.

The Colorado State Beekeepers' Association will hold its annual convention in the State Capitol building, Denver, Jan. 17, 1898. Let every apiarist in the State, who can, be at that meeting. Whether you can be at the meeting or not, write to me just as soon as you read this. First, I want your name and address, very plainly written. It is very likely that the association will have something to communicate to you that will be to your and others' interests, so we want your name and address sure. With the address tell me what topics you want discussed at the meeting, or any other business you want transacted. Any others—persons or associations—having business with this association will please communicate with our State Secretary, Mr. Frank Rauchfuss, Elyra, Col., or with myself.

R. C. ALKIN,
Pres. Col. State Beekeepers' Association,
Loveland, Col.

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